SERVICE MANUAL ST500

marantz

model ST500

Stereophonic Tuner

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2. Complete part numbers.
3. Complete description of parts.
4. Model number for which part is required (indicate MARANTZ).
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Brookvale 2100 N.S.W.
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Staines
Middlesex
England

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West Germany

All of the above locations are fully equipped to take care of your total service needs. Because various countries have differing configuration requirements, it is necessary that you contact the service facility in your particular country. In the event that there is no service location listed for your country, please contact the nearest facility for the necessary assistance.

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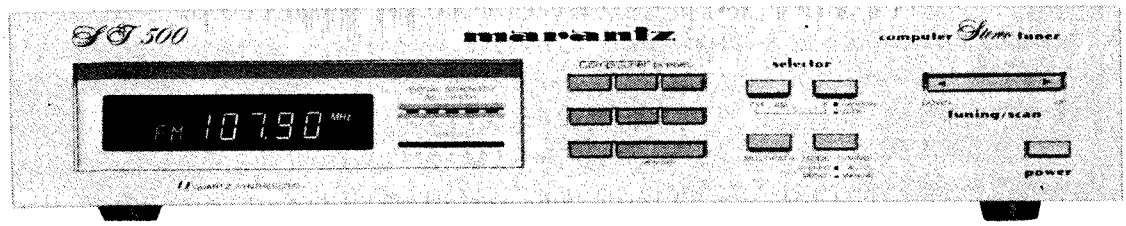
MODEL ST500 AM/FM STEREOPHONIC TUNER



1. INTRODUCTION

This service manual was prepared for use by Authorized Warranty Stations and contains service information for Marantz Model ST500 AM/FM Stereophonic Tuner.

Servicing information and voltage data included in this manual are intended for use by the knowledgeable and experienced technician only. All instructions should be read carefully. No attempt should be made to proceed without a good understanding of the operations in the tuner.

The parts list furnishes information by which replacement parts may be ordered from the Marantz Company. A simple description is included for parts which can usually be obtained through local suppliers.

2. P.W. BOARDS

As can be seen from the circuit diagram, the chassis of Model ST500 consists of the following units. Each unit mounted on a printed circuit board is described within the square enclosed by a bold dotted line on the circuit diagram.

1. Tuner & Synthesizer . . . mounted on P.W. Board P100
2. Noise Amplifier. . . . . mounted on P.W. Board PB00
3. Display Ass'y . . . . . mounted on P.W. Board P900
4. DE-Emphasis Switch . . . mounted on P.W. Board PC00
5. Scan Step. . . . . mounted on P.W. Board PC50
6. Fuse . . . . . mounted on P.W. Board PP00
7. Function Switch . . . . . mounted on P.W. Board PS00
8. Mode Switch . . . . . mounted on P.W. Board PT00
9. Preset Switch . . . . . mounted on P.W. Board PU00

NOTE ON SAFETY:

THE PARTS MARKED WITH ⚠ ARE IMPORTANT PARTS ON THE SAFETY. PLEASE USE THE PARTS HAVING THE DESIGNATED PARTS NUMBERS WITHOUT FAIL.

FTZ REGULATION

Instruction for the use in the range other than specified in FTZ codes.

Achtung für die Leute, die in dem Gebiet wohnen, wo die FTZ-Bestimmungen vorherrschend sind.

Sollte des Gerät auch für Frequenzen auszerhalb des in den FTZ-Bestimmungen angegebenen Bereiches empfangebereit sein, bitten wir, den Bereich durch Nachstellen des Kernes in der Oszillatorspule (in der Abbildung mit "FTZ" gekennzeichnet) so zu korrigieren, dass er den Bestimmungen entspricht.

3. TEST EQUIPMENT REQUIRED FOR SERVICING

This table lists the test equipment required for servicing the Model ST500 Tuner.

Item	Manufacturer and Model No.	Use
AM Signal Generator		Signal source for AM alignment
Test Loop		Use with AM Signal Generator
FM Signal Generator MPX Signal Generator	Sound Technology Model 1000A	Signal source for FM alignment Stereo separation alignment and trouble shooting
Distortion Analyzer Audio Oscillator AC VTVM	Sound Technology Model 1700A	Distortion measurements Sinewave and squarewave signal source Voltage measurements (AC)
Oscilloscope	Tektronix Model T932 Philips Model 3232	Waveform analysis and trouble shooting
Frequency Counter		MPX Oscillator adjustment (VCO)
Circuit Tester		Trouble shooting
DC VTVM	Fluke Model 8000 "Digital" Simpson Model 313, Triplet Model 801	Voltage measurements (DC)
AC Wattmeter	Simpson Model 1379	Monitors primary power to tuner
Line Voltmeter	Simpson Model 1359	Monitors potential of primary power to tuner
Variable Autotransformer	Superior Electronic Co., Powerstat Model 116B-10A	Adjusts level of primary power to tuner

4. TUNER ALIGNMENT PROCEDURES

A dummy resistor of 47 kohms must be connected across the tuner output terminals before alignment.

4.1 FM Alignment Procedures (Selector switch in the "FM" position, mode/tuning switch in the Mono/Manual Position.)

1. FM Local Oscillator Alignment

Step	Signal Source Connection	Signal Frequency	Indicator Connection	Set the Digital Readout Frequency to	Adjust:
1			DC voltmeter in 30V and 3V range to J505	107.90 MHz	C117 for 20.0V
2				88.10 MHz	L106 for 3.0V
3	Repeat steps 1 and 2				

2. FM RF Alignment

Step	Signal Source Connection	Signal Frequency	Indicator Connection	Set the Digital Readout Frequency	Adjust:
1	RF generator to FM antenna terminal through matching network (300 ohms, balanced) Maintain RF level below limit.	106.10 MHz	VTVM to L or R channel output (J102)	106.10 MHz	C101, C107, C110 for maximum output and minimum distortion.
2		90.10 MHz		90.10 MHz	L101, L102, L103 for maximum output and minimum distortion.
3	Repeat steps 1 and 2.				
4	RF generator to FM antenna terminals through matching network (300 ohms, balanced) Maintain RF level below limit.	98.10 MHz	VTVM to L or R channel output (J102)	98.10 MHz	L105 for maximum output and minimum distortion.
5	RF generator 1mV output to FM antenna terminals through matching network. (300 ohm, balanced)	98.10 MHz	"0" center meter or DC current meter in 100μA range between J201 and J202	98.10 MHz	L202 primary core so that the meter indicates its center or may read "0".
6	RF generator 1mV output to FM antenna terminals through matching network. (300 ohms, balanced)	98.10 MHz	Distortion meter to L or R channel output (J102)	98.10 MHz	IF Band switch "Wide". L202 secondary core for minimum distortion. IF Band switch "Narrow". L201 core for minimum distortion.
7	RF generator 1mV output to FM antenna terminals through matching network. (300 ohms, balanced)	98.10 MHz		98.10 MHz	RT01 so that signal strength Led may light 5 points.
8	RF generator to FM antenna terminals through matching network (300 ohms, balanced) with the RF signal level of that the signal strength LED may light 3 points at IF band switch "Wide".	98.10 MHz		98.10 MHz	IF Band switch "Narrow". R215 so that signal strength Led may light 3 points.

4.2 Muting Circuit Alignment

(FM stopping level of scanning. FM stereo indicator threshold level.)

Step	Signal Source Connection	Signal Frequency	Indicator Connection	Set the Digital Readout Frequency	Adjust:
1	RF generator 12.5μV output to FM antenna terminal through matching network (300 ohm, balanced)	98.10 MHz	VTVM to R or L channel output (J102)	98.10 MHz	R229 for 12.5μV threshold level (setting to Auto position of "Mode" switch)

4.3 Multiplex Alignment Procedures

(Selector switch in the "FM" position. Mode/Tuning switch in the Stereo/Auto position.)

Step	Signal Source Connection	Signal Frequency	Indicator Connection	Set the Digital Readout Frequency	Adjust:
1	RF generator to FM antenna terminals through matching network (300 ohms, balanced) with 1mV FM stereo simulator RF level and 100% modulation (Pilot 9%)	No modulation	Frequency counter to (J301)	98.10 MHz	R303 so that Frequency may precisely read 76 kHz
2		Stereo left (1,000 Hz)	VTVM to right channel output (J102)		IF Band switch "Wide" RS05. IF Band switch "Narrow" RS04. For same separation in both channels.
3		Stereo right (1,000 Hz)	VTVM to left channel output terminal (J102)		
4	Repeat steps 2 and 3.				
5	RF generator to FM antenna terminals through matching network (300 ohms, balanced) with 1mV FM stereo simulator RF level and Pilot 9% modulation.	Pilot only	VTVM to right and left channel output (J102)		R306 so that minimum output should be the same in both channels.

4.4 AM Alignment Procedures

(Selector switch in the "AM" position. Mode/Tuning switch in the Mono/Manual position.)

1. AM Local Oscillator Alignment (Scan step selector switch (SC51) in the "10 kHz" position.)

Step	Signal Source Connection	Signal Frequency	Indicator Connection	Set the Digital Readout Frequency	Adjust:
1			DC voltmeter in 30V and 3V range to (J505)	1,610 kHz	CA10 for 23V
2				530 kHz	LA02 for 2.0V
3	Repeat steps 1 and 2.				

2. AM IF Alignment

Step	Signal Source Connection	Signal Frequency	Indicator Connection	Set the Digital Readout Frequency	Adjust:
1	Sweep generator to (RA05)	450 kHz marker	Oscilloscope to (JA05)	Quiet point on band	LA03 & LA04 for maximum and symmetric response

3. AM RF Alignment

Step	Signal Source Connection	Signal Frequency	Indicator Connection	Set the Digital Readout Frequency	Adjust:
1	Apply the signal to the AM bar antenna from the RF generator using the test loop. As per the Figure 1.	1,400 kHz	VTVM to L or R channel output (J102)	1,400 kHz	CA02 for maximum output
2		600 kHz		600 kHz	L051 for maximum output
3	Repeat steps 1 and 2 as necessary to obtain maximum sensitivity.				
4	Apply the signal to the AM bar antenna from the RF generator using the test loop. As per the Figure 1. (with 3mV/m)	1,000 kHz		1,000 kHz	RS06 so that signal strength LED may light 4 points.

4. AM Stopping Level of Scanning
(Mode/Tuning switch in the "Stereo/Auto" Position.)

Step	Signal Source Connection	Signal Frequency	Indicator Connection	Set the Digital Readout Frequency	Adjust:
1	Apply the signal to the AM bar antenna from the RF generator using the test loop. As per the Figure 1. (with 600μV/m)	1,000 kHz	VTVM to L or R channel output (J102)	1,000 kHz	RA18 for 600μV threshold level

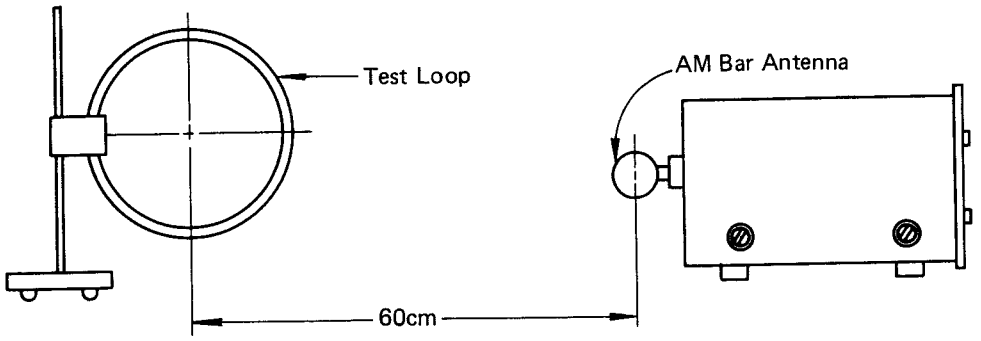


Figure 1. Application of AM Signal

5. VOLTAGE CONVERSION

• EUROPEAN MODEL ONLY

To convert the unit to a different power source voltage, change the position as illustrated in the drawing below.

CAUTION:
DISCONNECT POWER SUPPLY CORD FROM AC OUTLET BEFORE CONVERTING VOLTAGE. DO NOT DISASSEMBLE THE VOLTAGE SELECTOR ABSOLUTELY.

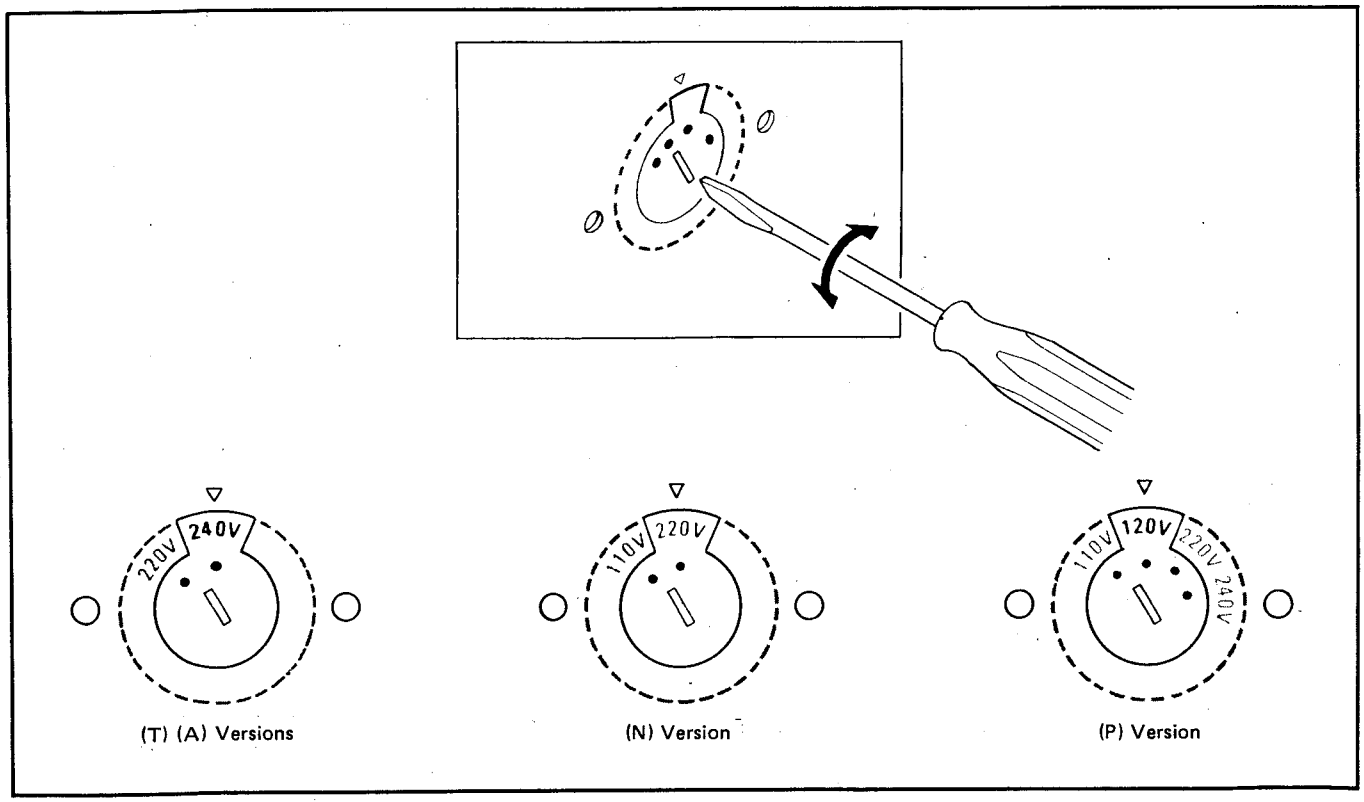


Figure 2. Voltage Conversion Chart

6. FREQUENCY SYNTHESIZER RADIO TUNING SYSTEM

[1] Construction of Synthesizer System

This frequency synthesizer is composed of a microcomputer (MN1400SJ), PLL LSI (MN6142), CMOS RAM (MN1203), prescaler (μPB551C), low pass filter, crystals and fluorescent indicating tubes, as shown in Figure 1.

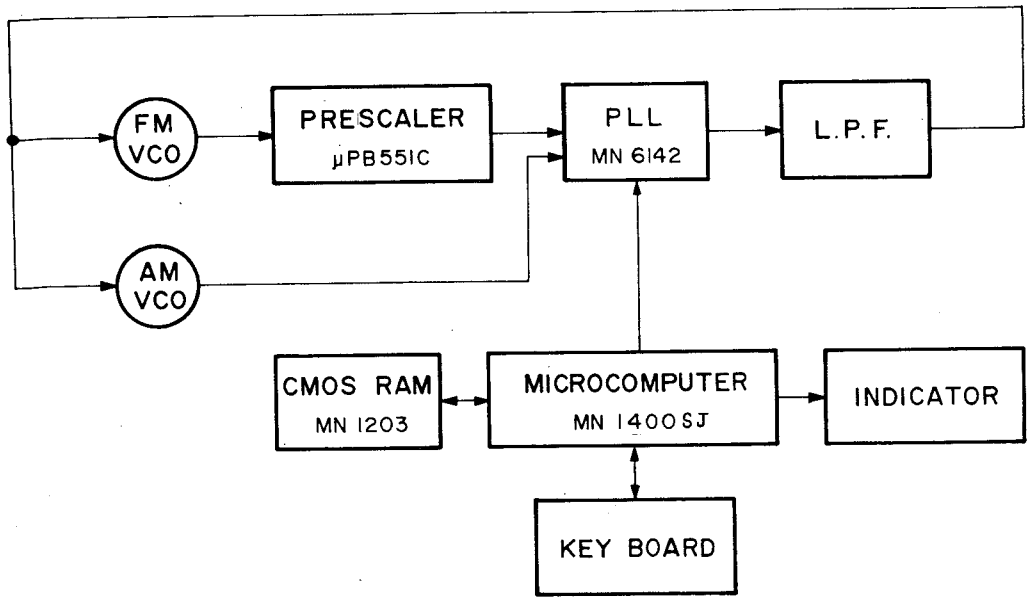


Figure 1

[2] Microcomputer MN1400SJ

[2]-1. Terminal Connections

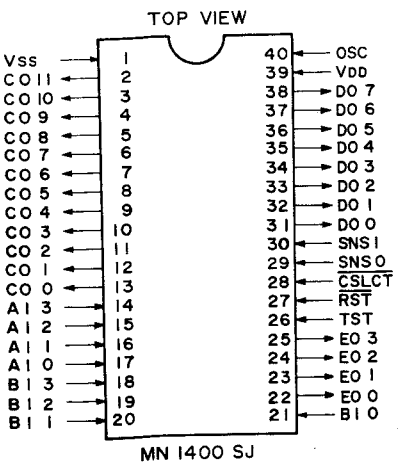


Figure 2

[2]-2. Block Diagram

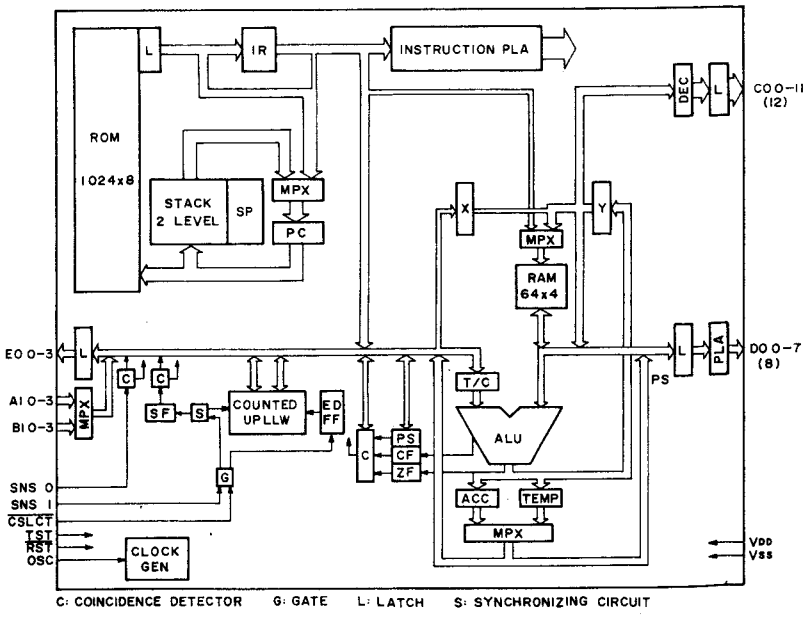


Figure 3

[2] -3. Specifications

Type No.	Function	Maximum Ratings (Ta = 25°C)			Electrical Characteristics (Ta = 25°C)					
		Item	Rating	Unit	Item	Condition	Min.	Typ.	Max.	Unit
MN1400	N-Channel LOCOS E/D MOS 4-Bit • 1 Chip Microcomputers	V_{DD}	−0.3~+10	V	I_{DD}	V_{DD} = 5V Without load		20	40	mA
		V_I	−0.3~+10	V						
		V_O	−0.3~+10	V	P_T	V_{DD} = 5V Without load		100	200	mA
		V_{OSC}	−0.3~+10	V						
		I_{OH} (PK) (C,D.E Port)	−0.5	mA	V_{IH1}	AI0~AI3, BI0~BI3 SNS0, SNS1 V_{DD} = 5V	2.4		V_{DD}	V
		I_{OL} (PK) (C,D,E. Port)	8	mA	V_{IL1}		V_{SS}		0.8	
		I_{OH} (aV) (C,D,E. Port)	−0.25	mA	V_{IH2}	$\overline{RST}$, $\overline{CSLCT}$, RDY V_{DD} = 5V	2.4		V_{DD}	V
		I_{OL} (aV) (C,D,E. Port)	4	mA	V_{IL2}		V_{SS}		0.8	
		P_T	500	mW	I_{I2}	V_I = 0.8V	−5	−15	−30	μA
		Topr	−30~+70	°C	V_{OH1}	CO0~CO11, DO0~DO7, SYNC, EO0~EO3, DOPS, RA0~RA10 V_{DD} = 5V I_{OH} = −30μA	4			V
		Tstg	−55~+125	°C	V_{OH2}	V_{DD} = 5V I_{OH} = −100μA	2.6			
		Operating Condition (Ta = 25°C)			V_{OL}	V_{DD} = 5V I_{OL} = 2mA			0.5	
		Item	min.typ.max.	Unit	f_{OSC}	V_{DD} =5V, R_{OSC} =18kΩ, C_{OSC} =100pF	200	300	450	kHz
		V_{DD}	4.5,5,6	V	C_I	V_{DD} = 5V, V_I = 2V		5		pF
					C_O	V_{DD} = 5V, V_I = 2V		7		

[2] -4. Functions of Terminals

No.	Symbol	Item	No.	Symbol	Item
1	V_{SS}	GND	40	OSC	360 kHz In
2	CO11		39	V_{DD}	5V
3	CO10	Muting Output (H)	38	DO7	
4	CO9	Band: AM/FM Select Signal Output	37	DO6	Segment output: c
5	CO8	Load signal output to PLL latch circuit	36	DO5	Segment output: d
6	CO7	Memory chip enabling output	35	DO4	Segment output: a
7	CO6		34	DO3	Segment output: f Frequency-division ratio preset output
8	CO5	Digit output: AM, FM, ME , FM Stereo	33	DO2	Segment output: e Frequency-division ratio preset output
9	CO4	5th digit	32	DO1	Segment output: g Frequency-division ratio preset output
10	CO3	4th digit	31	DO0	Segment output: b Frequency-division ratio preset output
11	CO2	3rd digit	30	SNS1	5V
12	CO1	2nd digit	29	SNS0	
13	CO0	1st digit	28	$\overline{CSLCT}$	GND
14	AI3	Key mode switch input	27	$\overline{RST}$	Reset
15	AI2	Key mode switch input	26	TST	
16	AI1	Key mode switch input	25	EO3	Key mode switch output
17	AI0	Key mode switch input	24	EO2	Key mode switch output
18	BI3	5V	23	EO1	Key mode switch output
19	BI2		22	EO0	Memory PLL address latch select output
20	BI1		21	BI0	Squelch input (L)

[3] PLL LSI MN6142

[3]-1. Terminal Connections

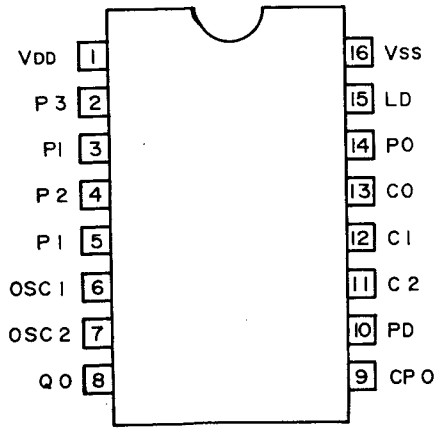


Figure 4.

[3]-2. Specifications

Absolute maximum ratings

Item	Symbol	Rating	Unit	Remarks
Power supply voltage	V_{DD}	-0.3~+10	V	V_{SS}=0V
Power consumption	P_T(MAX)	50	mW	
Input voltage	V_{IN}	-0.3~V_{DD}+0.3	V	V_{SS}=0V
Output voltage	V_{OUT}	-0.3~V_{DD}+0.3	V	V_{SS}=0V
Operating temperature	V_{OPT}	-20~+70	°C	
Storage temperature	T_{stg}	-55~+100	°C	

[3]-3. Block Diagram

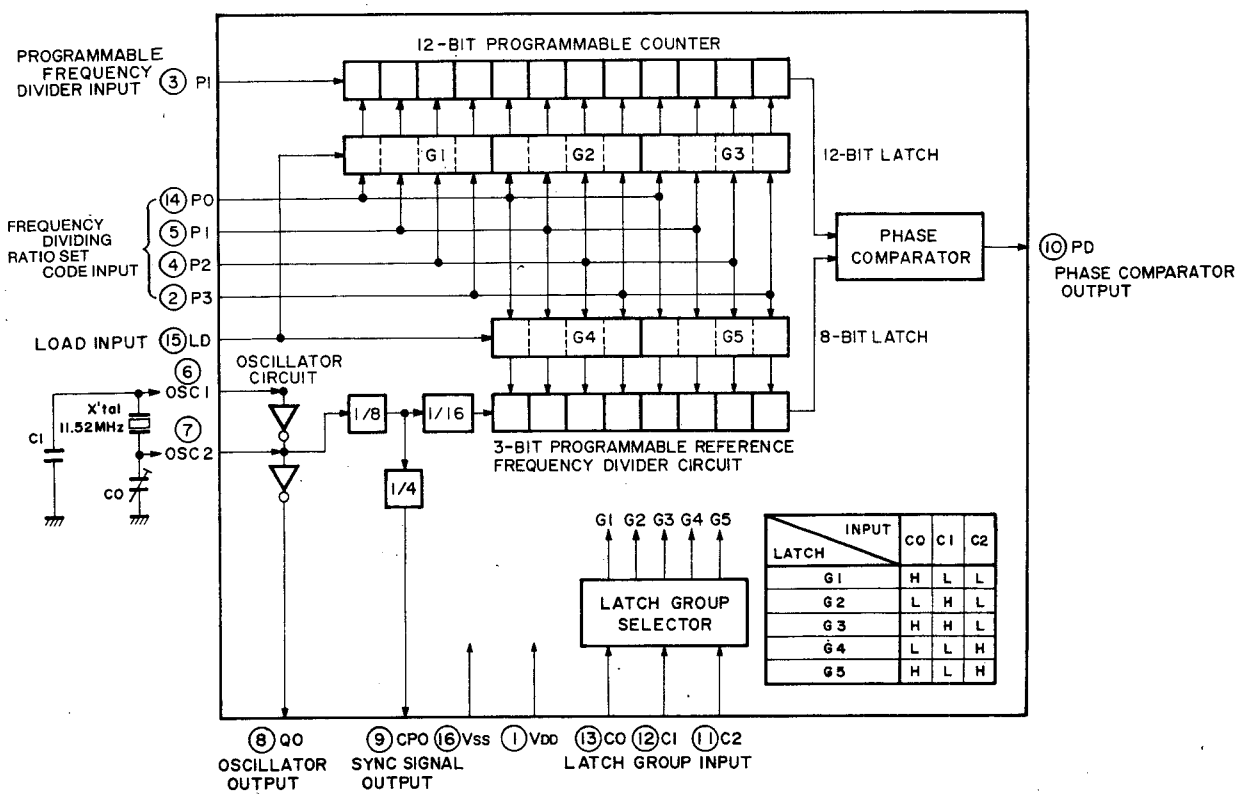


Figure 5.

[3] -4. Functions of Terminal

No.	Symbol	Descriptions
1	V_{DD}	Power supply, +5V
2	P3	Frequency dividing ratio preset code input
3	P1	Programable frequency divider input
4	P2	Frequency dividing ratio preset code input
5	P1	Frequency dividing ratio preset code input
6	OSC1	Oscillator
7	OSC2	Oscillator
8	Q0	Oscillator output, 11.52 MHz
9	CPO	Sync signal output, 360 kHz
10	PD	Phase comparator output
11	C2	Latch group select input
12	C1	Latch group select input
13	CO	Latch group select input
14	PO	Frequency dividing ratio preset code input
15	LD	Load signal terminal for frequency dividing ratio preset code input latch circuit
16	V_{SS}	Ground

[4] CMOS RAM MN1203

[4] -1. Terminal Connection

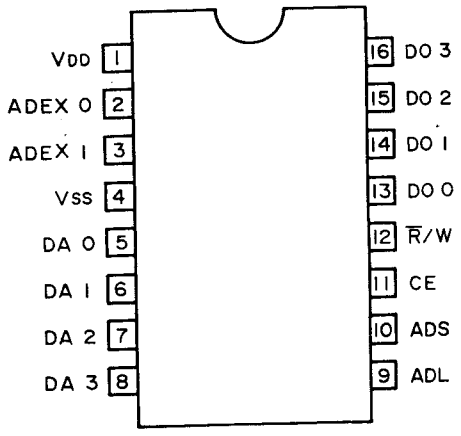


Figure 6.

[4] -2. Specifications

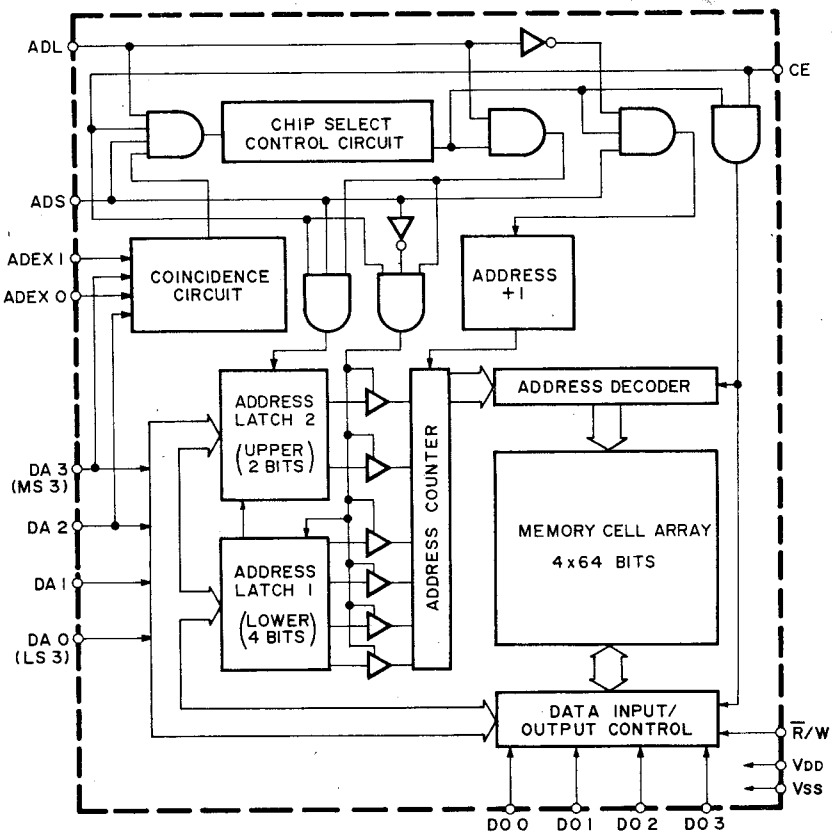
Absolute maximum ratings

Item	Symbol	Rating	Unit	Remarks
Power supply voltage	V_{DD}	-0.3~+8.0	V	V_{SS}=0V
Input terminal voltage	V_{IN}	-0.3~V_{DD}+0.3	V	V_{SS}=0V
Output terminal voltage	V_{OUT}	-0.3~V_{DD}+0.3	V	V_{SS}=0V
Operating temperature	V_{OPT}	-20~+70	°C	
Storage temperature	T_{stg}	-55~+100	°C	

[4] -3. Block Diagram

3. Functional block diagram

Figure 7.



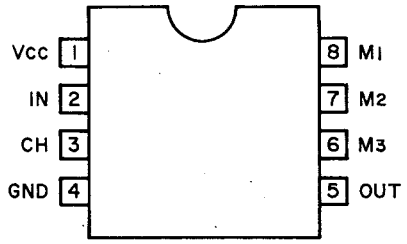
[4] -4. Functions of terminals

No.	Symbol	Descriptions
1	V_{DD}	Power supply, +5V
2	ADEX0	Chip select input
3	ADEX1	Chip select input
4	V_{SS}	Ground
5	DA0	Data/address input
6	DA1	Data/address input
7	DA2	Data/address input
8	DA3	Data/address input
9	ADL	Address latch data input
10	ADS	Address latch select input
11	CE	Chip enable input
12	R/W	Writing designation input
13	DO0	Data output
14	DO1	Data output
15	DO2	Data output
16	DO3	Data output

[5] PRESCALER μPB551C

[5]-1. Terminal Connections

Figure 8.



[5]-2. Specifications

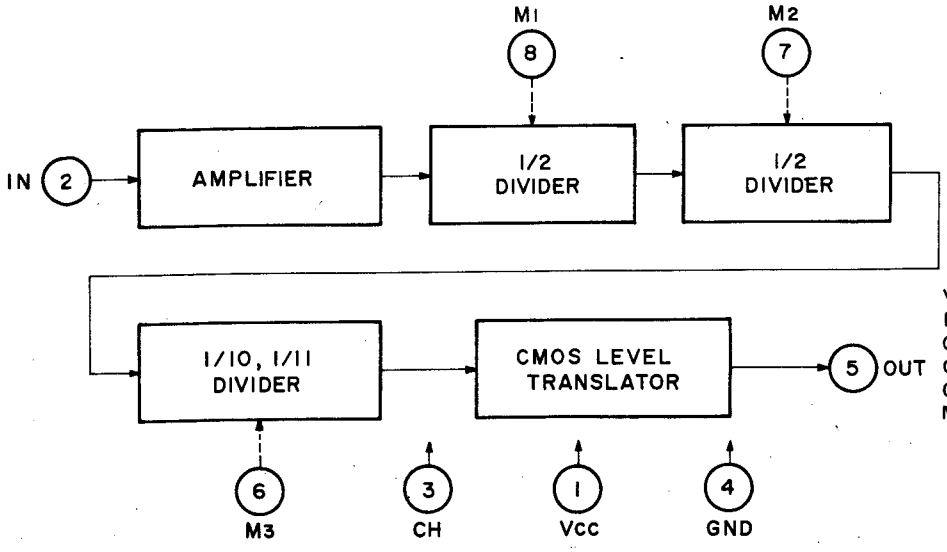
Absolute maximum ratings (Ta = 25°C)

Item	Symbol	Rating	Unit
Power supply voltage	V_{CC}	−0.5 ~ +6.0	V
Input voltage	V_I	−0.5 ~ V_{CC}	V
Output current	V_O	15	mA
Junction temperature	T_j	+125	°C
Storage temperature	Tstg	−55 ~ +125	°C

Electrical characteristics (V_{CC} = 5V ± 10%, Ta = −30 ~ +75°C)

Item	Symbol	Conditions	Min.	Typ.	Max.	Unit
Power supply current	I_{CC}	V_{CC} = 5.0V		38	52	mA
High level output voltage	V_{OH}	Out terminal, I_O = −40μA	4.0			V
Low level output voltage	V_{OL}	Out terminal, I_O = 1.0mA			1.0	V
High level input voltage	V_{IH}	M3 terminal *1	4.0			V
Low level input voltage	V_{IL}	M3 terminal *2			1.0	V
Input voltage	V_{in}	IN terminal	140			mVr.m.s.
Response frequency	f_{in1}	IN terminal, 1/10, 1/11 frequency dividing *3	1.0		100	MHz
Response frequency	f_{in2}	IN terminal, other than 1/10, 1/11 frequency dividing *3	1.0		150	MHz

[5]-3. Block Diagram



Vcc : POWER SUPPLY "+"
IN : SIGNAL INPUT
CH : CHECK TERMINAL
GND : GROUND
OUT : DIVIDED FREQUENCY OUTPUT
M3-M1 : FREQUENCY DIVIDING RATIO SETTING

Figure 9.

[6] Principles of Operation of PLL Synthesizer Tuning System

This synthesizer system incorporates a PLL circuit and a microcomputer to electronically select radio stations by varying the capacity of a varactor diode, eliminating the need for a mechanical variable condenser.

The basic operation of the system is illustrated in Fig. 10. When a reserve voltage is applied to the varactor diode, the junction capacity of the diode is varied which in turn varies the tank tuning frequency and hence the antenna circuit, RF amplifier and local oscillator circuit are tuned to the desired radio frequency.

In FM tuning, the local oscillator frequency fL is divided by 20 by the prescaler, since it is as high as ☆ 98.8-118.6 MHz (or ☆2 98.2-118.7 MHz). The divided frequency is then applied to the 1/N programmable counter where it is further divided by N. The divided signal (fL') is phase-compared with the reference signal (fr), which the crystal oscillator frequency (11.52 MHz) is count down by the reference frequency divider.

If there is a difference in frequency or phase between the two signals, an error output(er) corresponding to the difference is produced.

The error output is a pulse signal and its DC component is picked up by the LPF in the next stage. The DC component is fed back to the varactor diode to vary the local oscillator frequency.

When the local oscillator frequency is varied and "fr" and "fL'" are equal, the phase sync loop is locked.

$$fL' = fL/20N = fr$$
$$fL = 20Nfr$$

By changing the value of N (an integer) fed from the microcomputer to the 1/N programmable counter, the local oscillator frequency can be varied in 20fr steps. When tuning FM in 200 kHz steps, the value of N = 2N' (N': integer) is fed from the microcomputer. Proper tracking adjustment between the tuning circuit for the antenna and RF amplifier and the local oscillator tuning circuit enables reception of the desired station.

The microcomputer programs the relationship between the receiving mode, intermediate frequency and the value of N and feeds the data of the receiving frequency via the driver to indicate the tuned frequency on the fluorescent tube indicator.

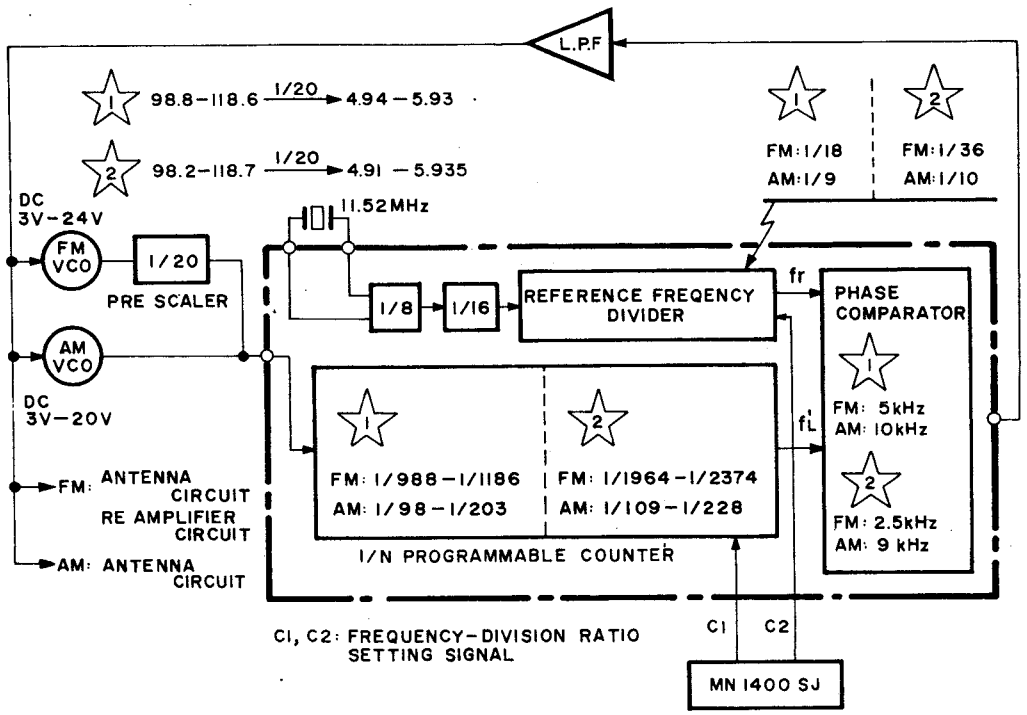
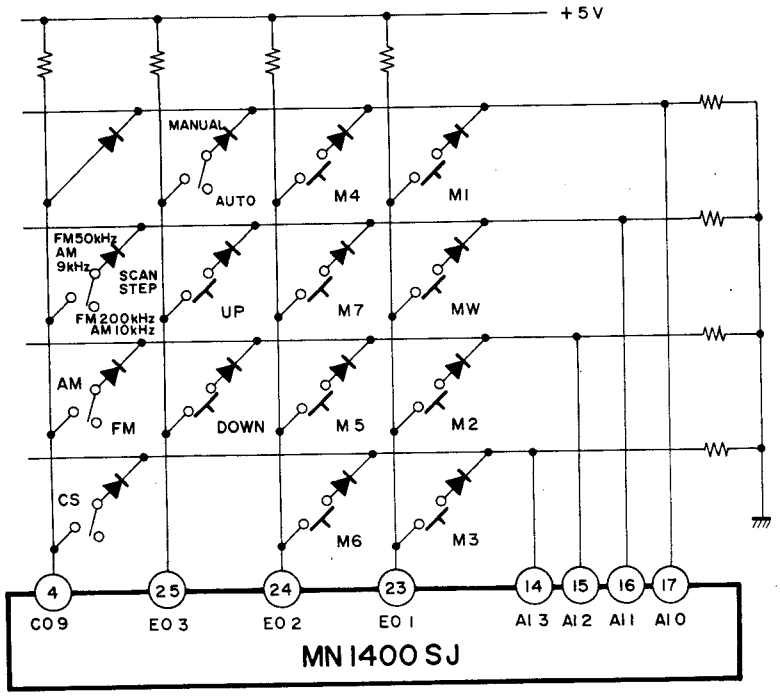


Figure 10.

	Scan step	Receiving frequency	Intermediate frequency	Local oscillator frequency	Number of channels	Phase comparator reference frequency
☆1	FM: 200KHz AM: 10KHz	88.1MHz ~ 107.9MHz 530KHz ~ 1,610KHz	10.7MHz 450KHz	98.8MHz ~ 118.6MHz 980KHz ~ 2,060KHz	100 109	5KHz 10KHz
☆2	FM: 50KHz AM: 9KHz	87.50MHz ~ 108.00MHz 531KHz ~ 1,602KHz	10.7MHz 450KHz	98.2MHz ~ 118.7MHz 981KHz ~ 2,052KHz	441 120	2.5KHz 9KHz

Mode Setting and Control Key Connections



MW: Memory write
* Memory write is possible with key input.
* Memory write mode is retained for 5 seconds after key input is turned ON.

M1-M7: Memory address
* Received station is stored in memory by key input in memory write mode.
* Station frequency stored in memory is called in mode other than "memory write".

UP, DOWN: Up/Down scan

Mode switch in AUTO: Scanned at about 110 msec/ch intervals.

Mode switch in MANUAL: a) Step scan by channel.
b) Scanned at about 90 msec/ch one second after continuous key input.

Scan stop: AUTO ..... Activated by squelch signal (receive signal).
MANUAL ..... Activated by key input OFF.

AUTO/MANUAL: Scan AUTO/MANUAL select switch.
* AUTO ..... Automatic scan with up/down key input.
* MANUAL ... Manual scan with up/down key input.

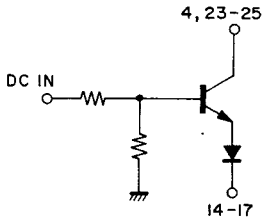
AM/FM: AM/FM select switch
* Selects AM and FM bands.
* Calls the last channel of the selected band.

CS: Chip select switch
* Display goes off at ON position.
* Control key input is inhibited at the same time.

SCAN STEP: Channel space and frequency select switch.

* AM 10K:	10kHz space	530kHz - 1,610 kHz
FM 200K:	200kHz space	88.1MHz - 107.9MHz
* AM 9K:	9kHz space	531kHz - 1,602kHz
FM 50K:	50kHz space	87.50MHz - 108MHz

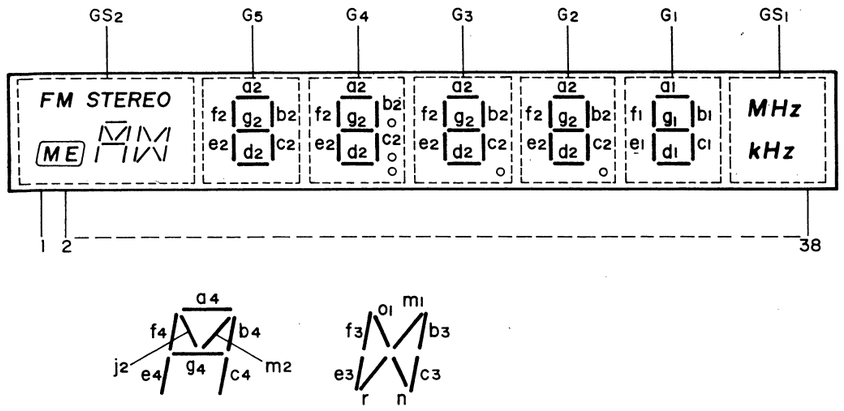
Switches other than SCAN STEP are transistor switches and used for remote control capability.



Indicator

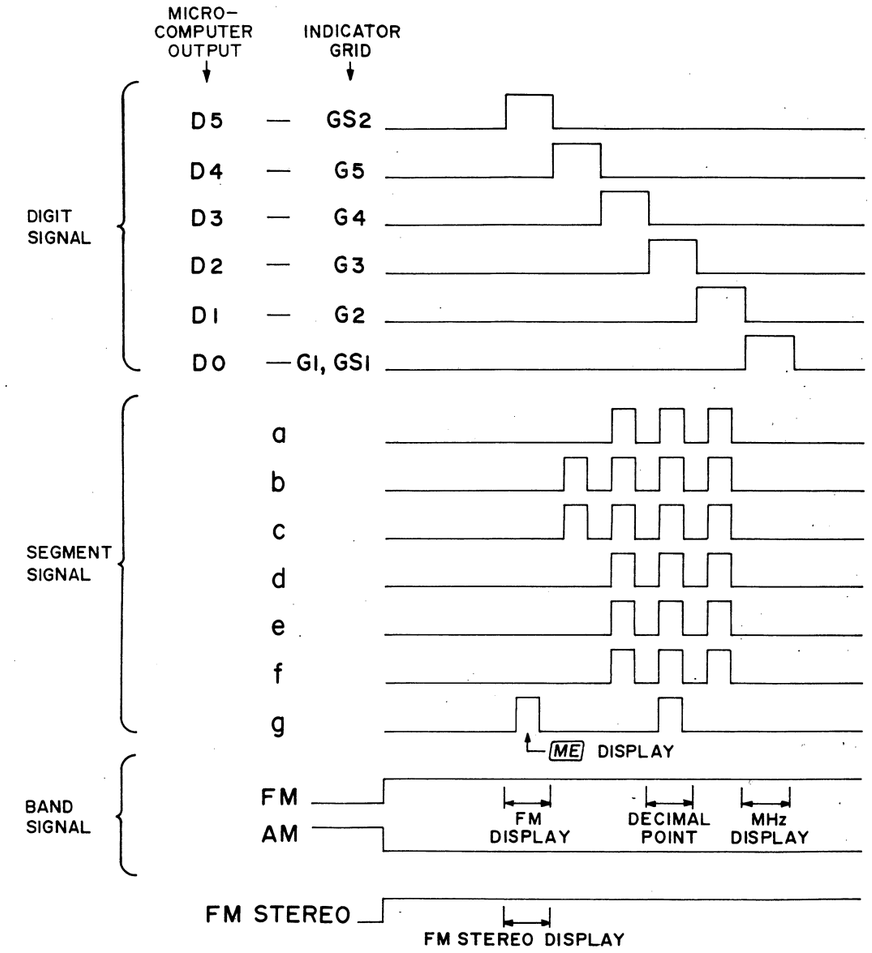
The indicator employs fluorescent tubes for dynamic lighting.

Dynamic lighting timing chart



Pin No.	Connection	Pin No.	Connection	Pin No.	Connection	Pin No.	Connection
1	F	11	b_4	21	G_3	31	a_2
2	FM STEREO	12	a_4	22	e_2	32	g_1
3	ME	13	G_5	23	D_{p3}	33	b_1, e_1
4	GS_2	14	j_1, m_1	24	D_{p2}	34	GS_1
5	j_2, m_2	15	h, r	25	d_2	35	a_1, f_1, c_1, d_1
6	g_4	16	b_3, c_3, e_3, f_3	26	G_2	36	KHz
7	e_4	17	G_4	27	D_{p1}	37	MHz
8	d_4	18	g_2	28	C_2	38	F
9	C_4	19	f_2	29	b_2		
10	GS_2	20	Col	30	G_1		

Dynamic Lighting Timing Chart

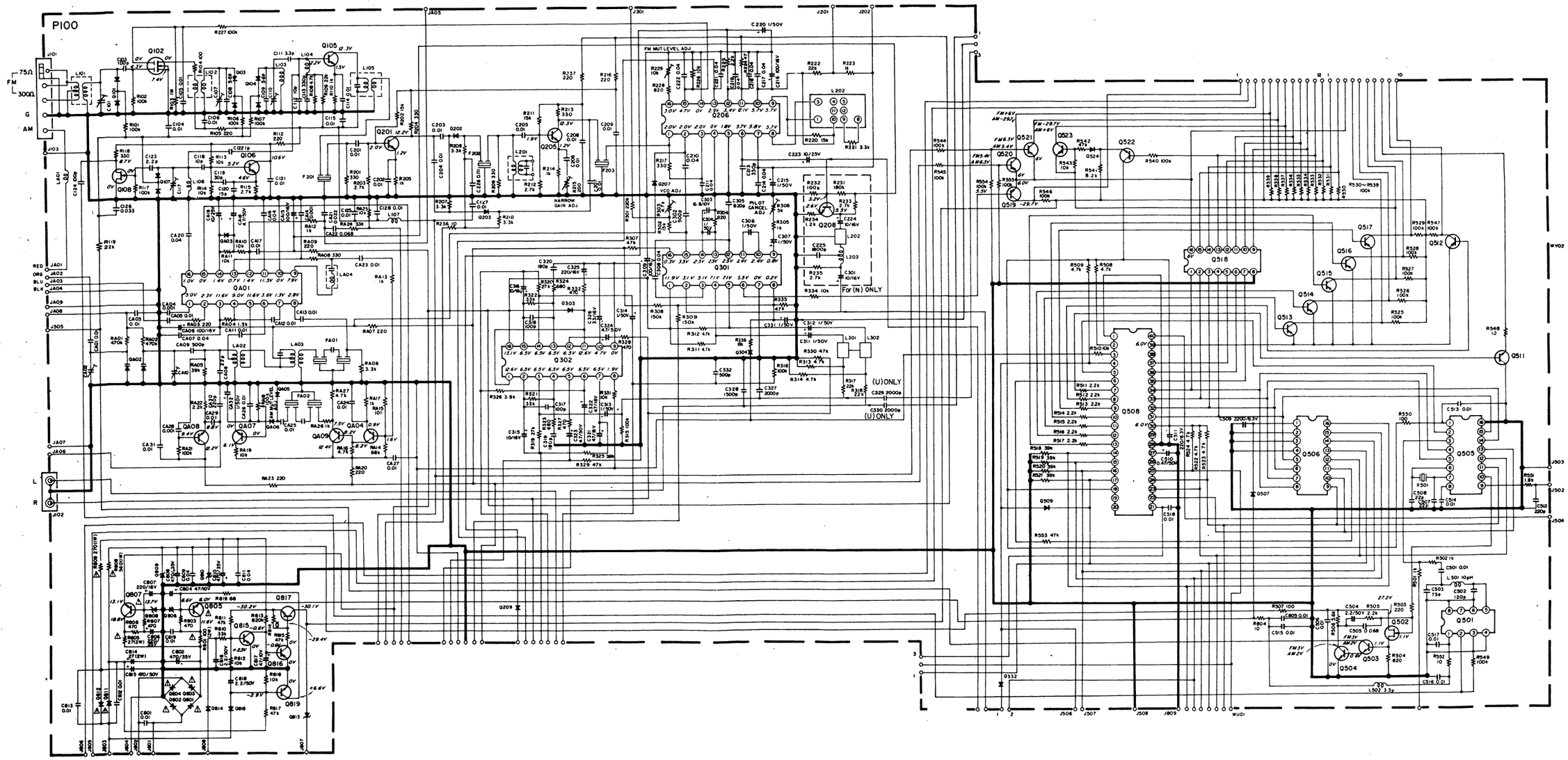


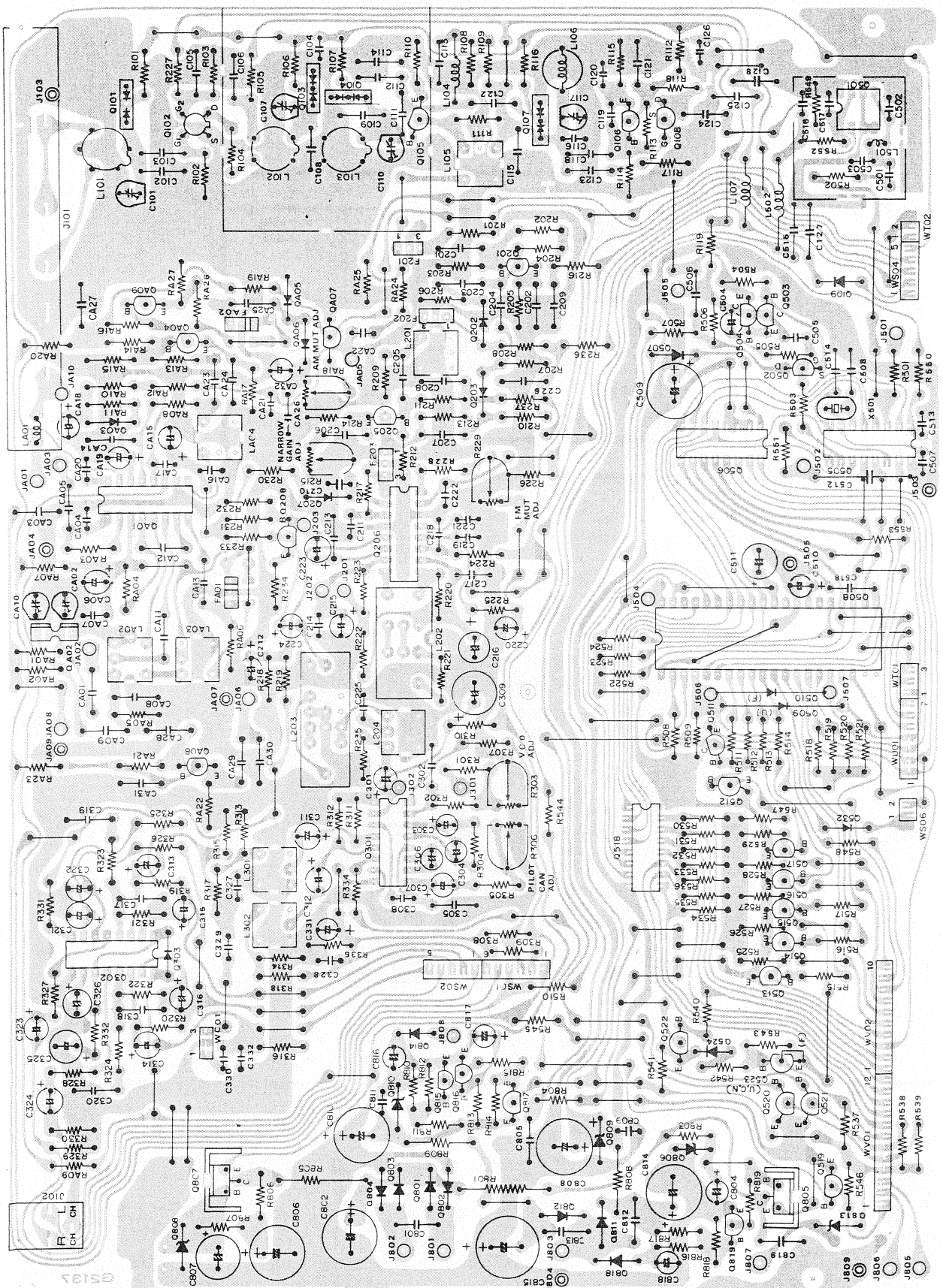
* In the above timing chart, the display lights on FM STEREO, ME and FM 108.00 MHz.

* For the indication of minimum digit (G1), the segments a1, c1, d1 and f1 are always lighted, the letter 5 is lighted by the signal g, and the figure 0 is lighted by signals b1 & e1 fed by Q902 & Q903 when the signal g is low level.

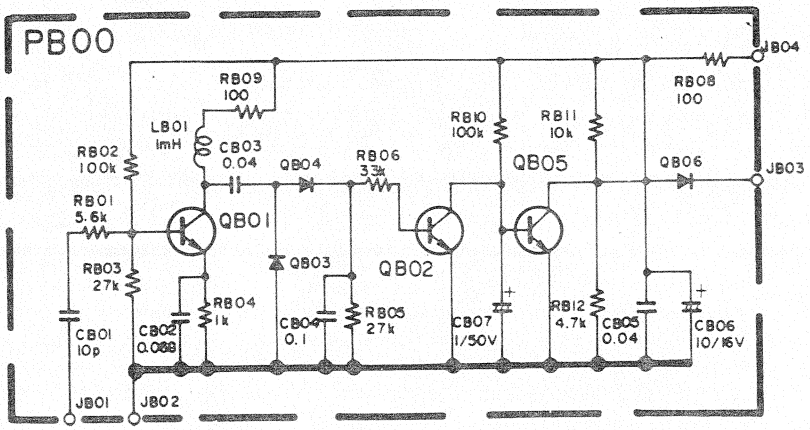
7. DIAGRAM AND COMPONENT LOCATIONS

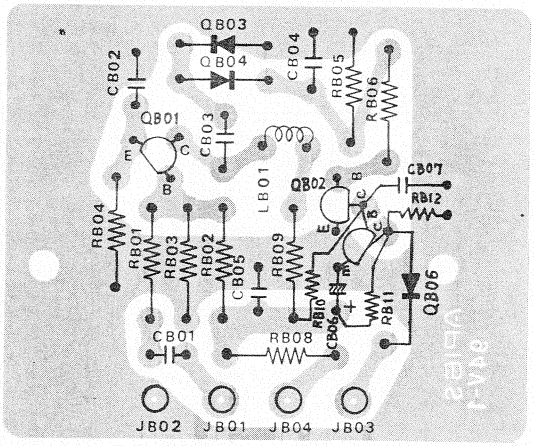
7.1 Tuner and Synthesizer Assembly (P100) Schematic Diagram and Component Locations



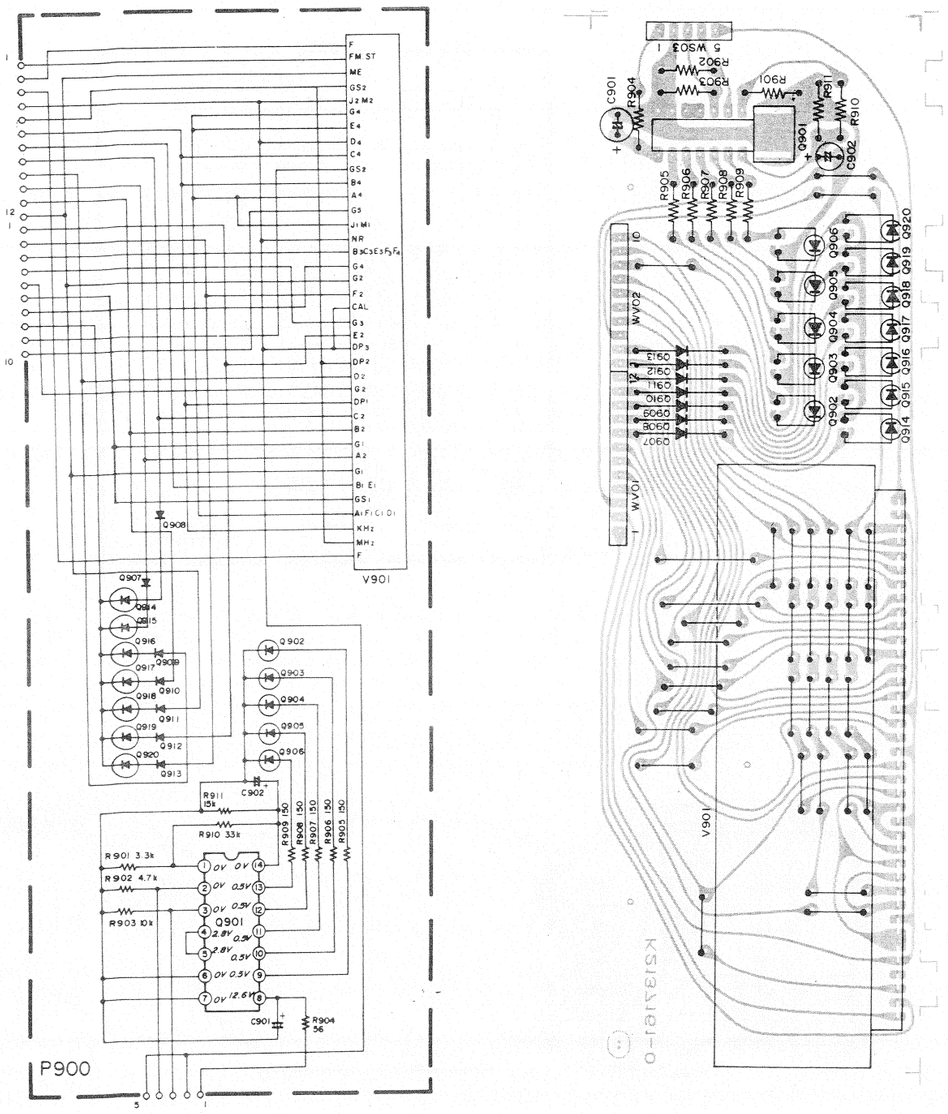

NARROW GAIN ADJ
AM MUT ADJ
FM MUT ADJ
VCO ADJ
PILOT CAN ADJ

7.2 Noise Amplifier Assembly (PB00) Schematic Diagram and Component Locations

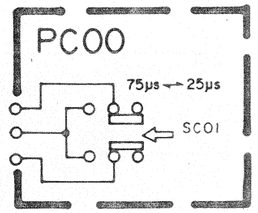


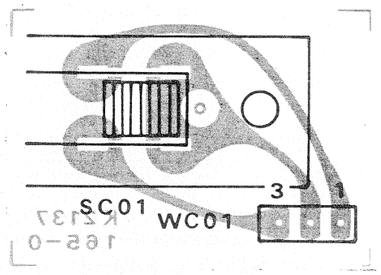


7.3 Display Assembly (P900) Schematic Diagram and Component Locations

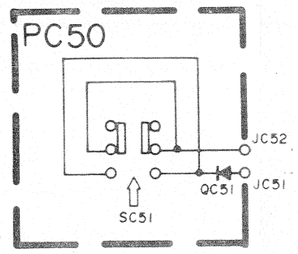


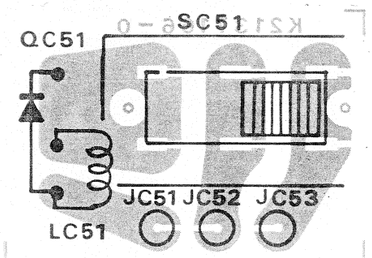
7.4 DE-Emphasis Switch Assembly (PC00) Schematic Diagram and Component Locations



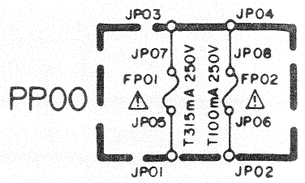


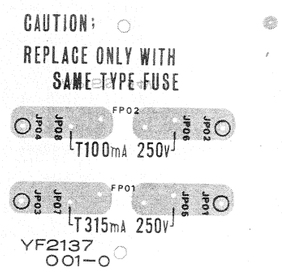
7.5 Scan Step Assembly (PC50) Schematic Diagram and Component locations



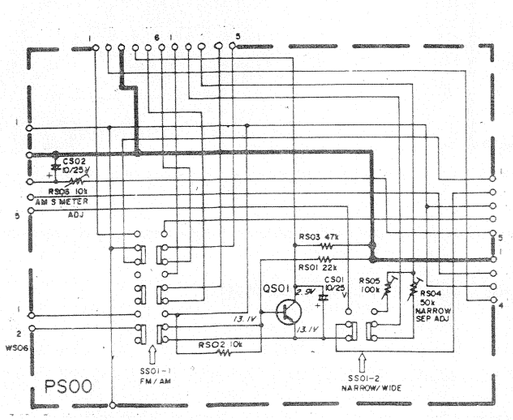


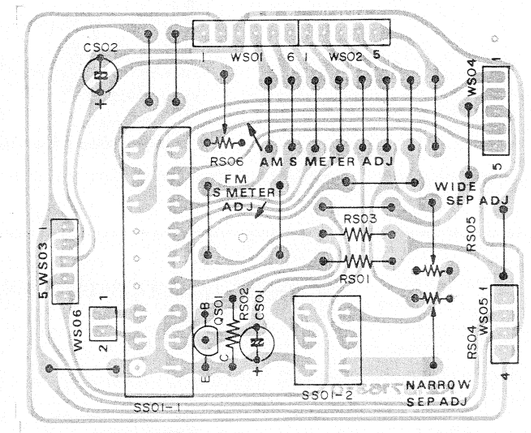
7.6 Fuse Assembly (PP00) Schematic Diagram and Component Locations



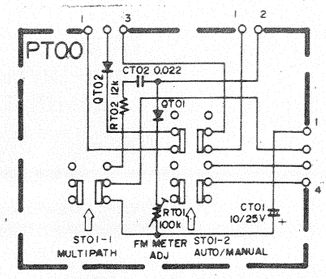


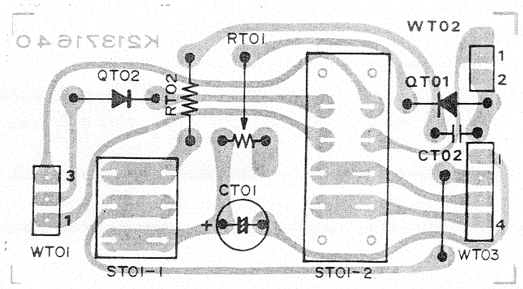
7.7 Function Switch Assembly (PS00) Schematic Diagram and Component Locations



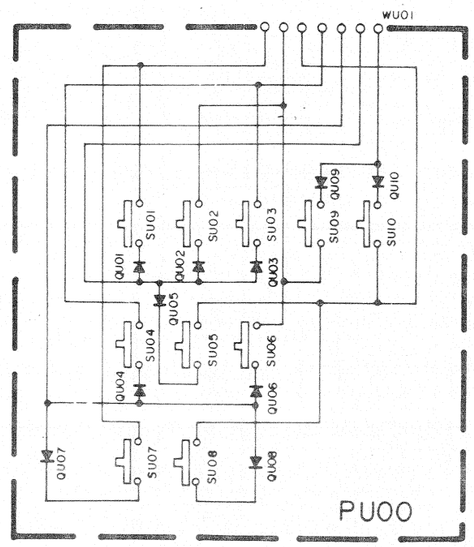


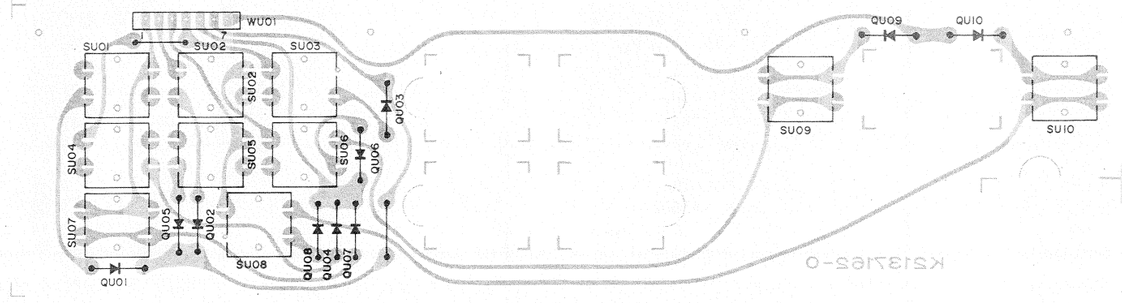
7.8 Mode Switch Assembly (PT00) Schematic Diagram and Component Locations



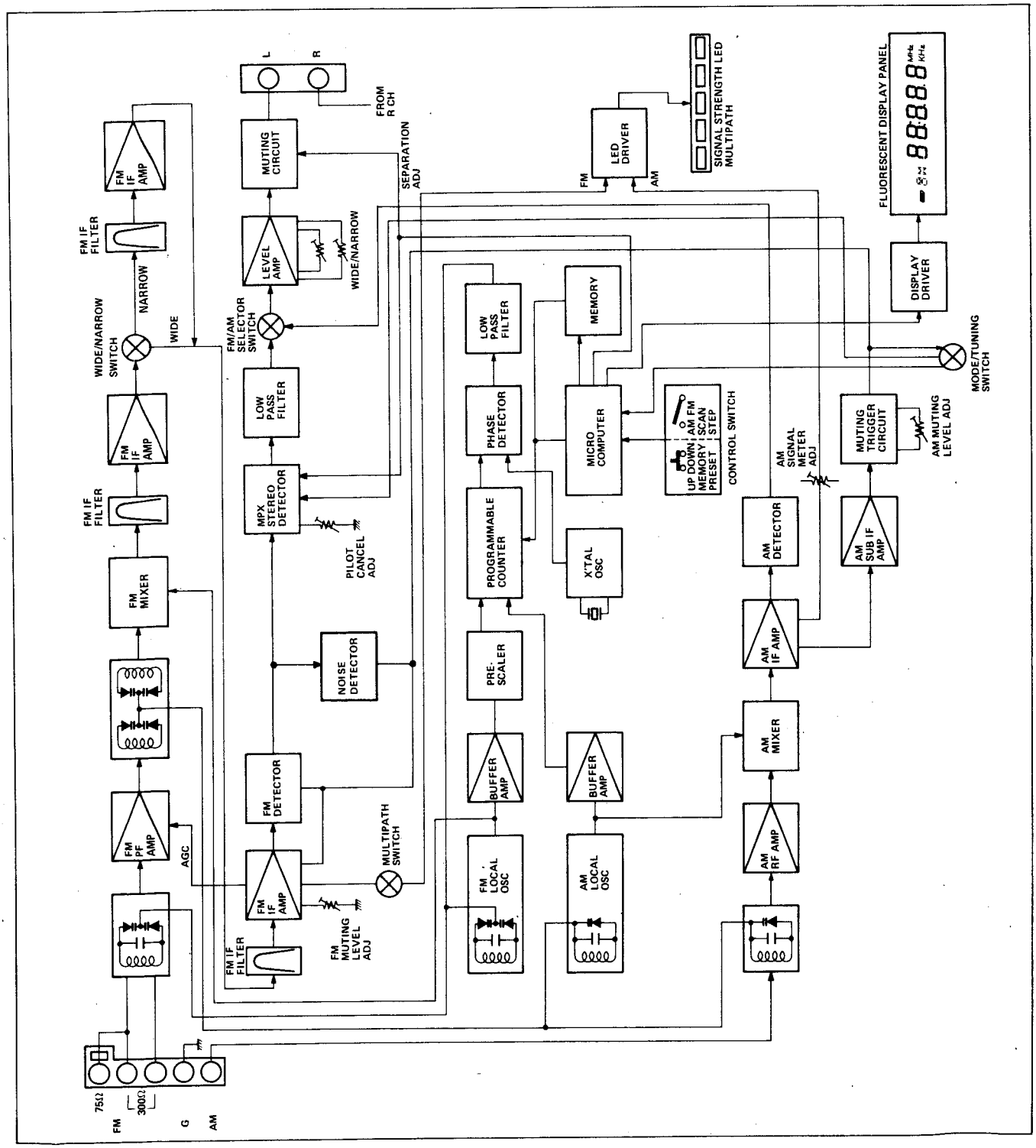


7.9 Preset Switch Assembly (PU00) Schematic Diagram and Component Locations



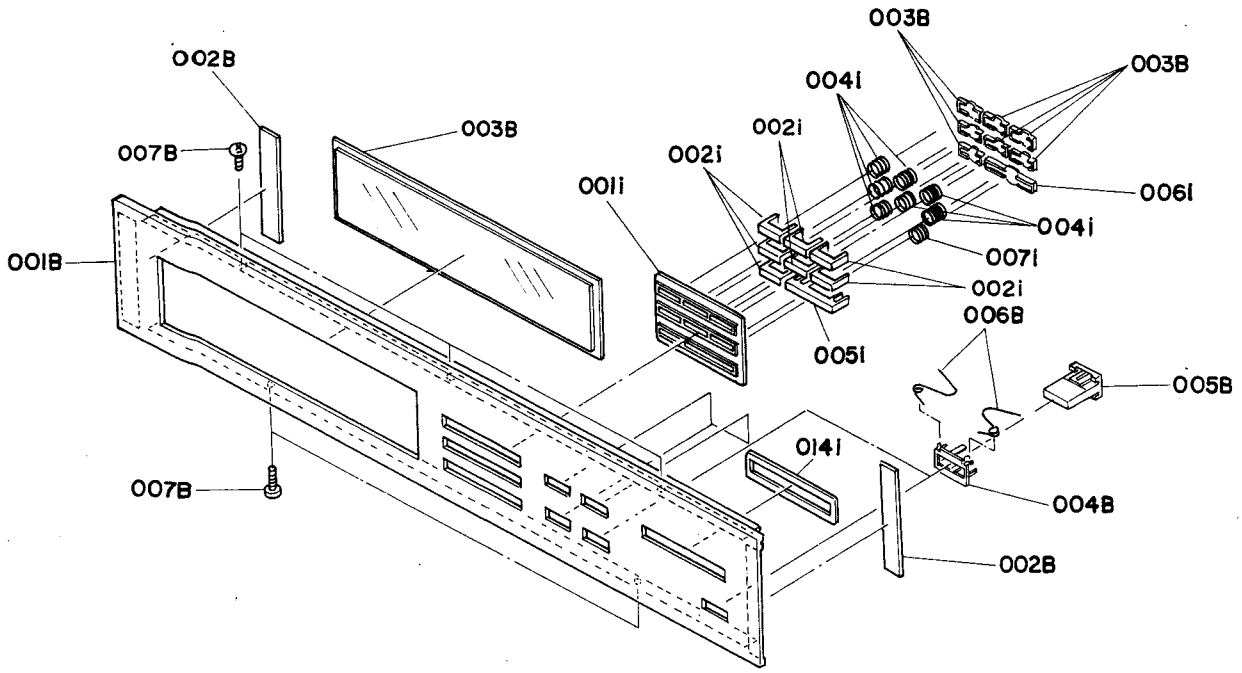


8. FUNCTIONAL BLOCK DIAGRAM



9. EXPLODED VIEW AND PARTS LIST

- **[C01-99] Front Panel**

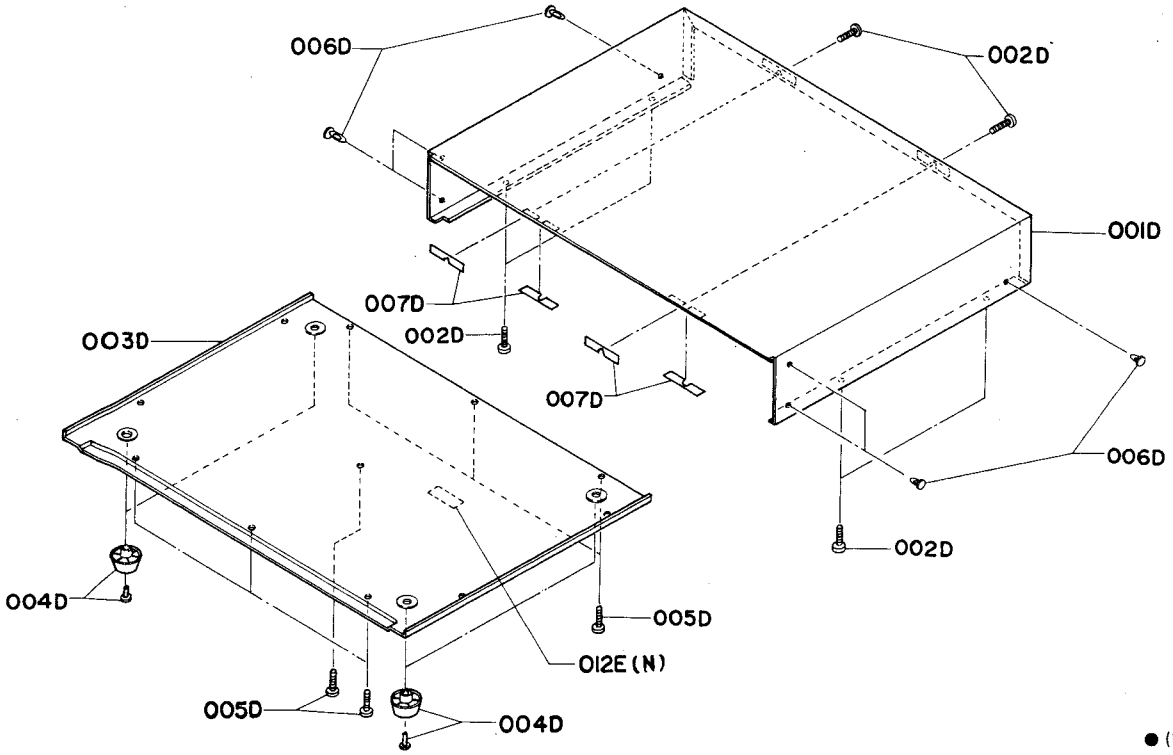


- (U) for U.S.A.
- (C) for Canada
- (N) for Europe

REF. DESIG.	Q'TY U	C	N	PART NO.	DESCRIPTION
A	1	1	1	2137063400	Front Panel Assembly
001B	1	1	1	2137063013	Escutcheon
002B	2	2	2	2149118010	Spacer
003B	1	1	1	2137158010	Window
004B	5	5	5	2127259012	Bushing
001i	1	1	1	2137259012	Bushing
002i	7	7	7	2137154012	Knob
003i	7	7	7	2137005012	Clamper
004i	7	7	7	2137115010	Spring
005i	1	1	1	2137154022	Knob
006i	1	1	1	2137005022	Clamper
007i	1	1	1	2137115110	Spring
014i	1	1	1	2137259020	Bushing

REF. DESIG.	Q'TY U	C	N	PART NO.	DESCRIPTION
005B	5	5	5	2127154010	Knob
006B	10	10	10	2127115010	Spring
007B	5	5	5	51280308B0	B.H. TAP. Screw B3 x 8

• [C02-99] Top and Bottom Cover

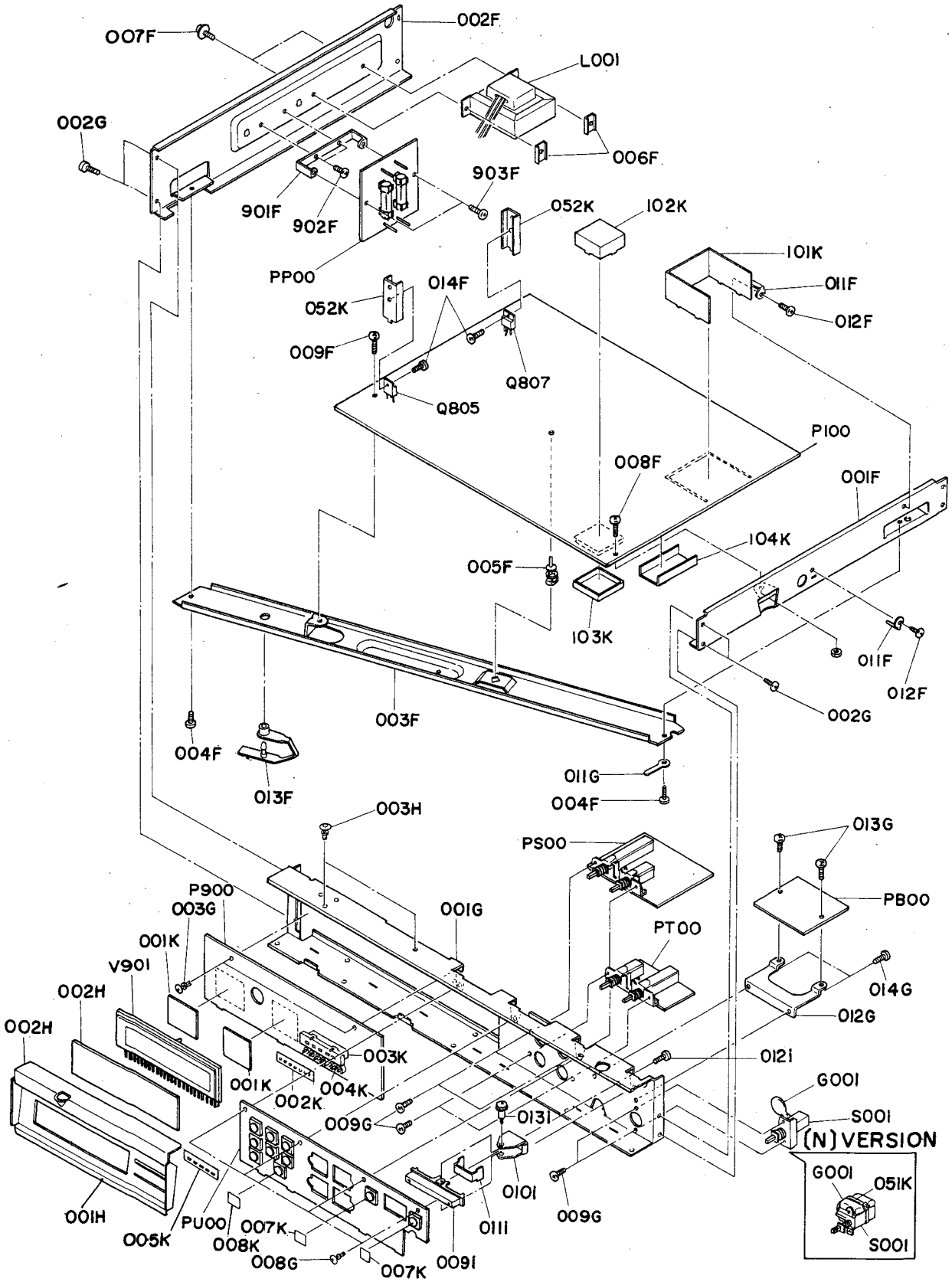


- (U) for U.S.A.
- (C) for Canada
- (N) for Europe

REF. DESIG.	Q'TY U	C	N	PART NO.	DESCRIPTION
					TOP COVER
001D	1	1	1	2137257012	Lid
002D	6	6	6	51280308U0	B.H. TAP. Screw B3 x 8
006D	6	6	6	2991259010	Bushing
007D	4	4	4	2149118110	Spacer

REF. DESIG.	Q'TY U	C	N	PART NO.	DESCRIPTION
					BOTTOM COVER
003D	1	1	1	2137257020	Lid
004D	4	4	4	2149057010	Leg
005D	7	7	7	51280308B0	B.H. TAP. Screw B3 x 8
012E			1	3889861010	Label

• [C03-99] Chassis and General Parts



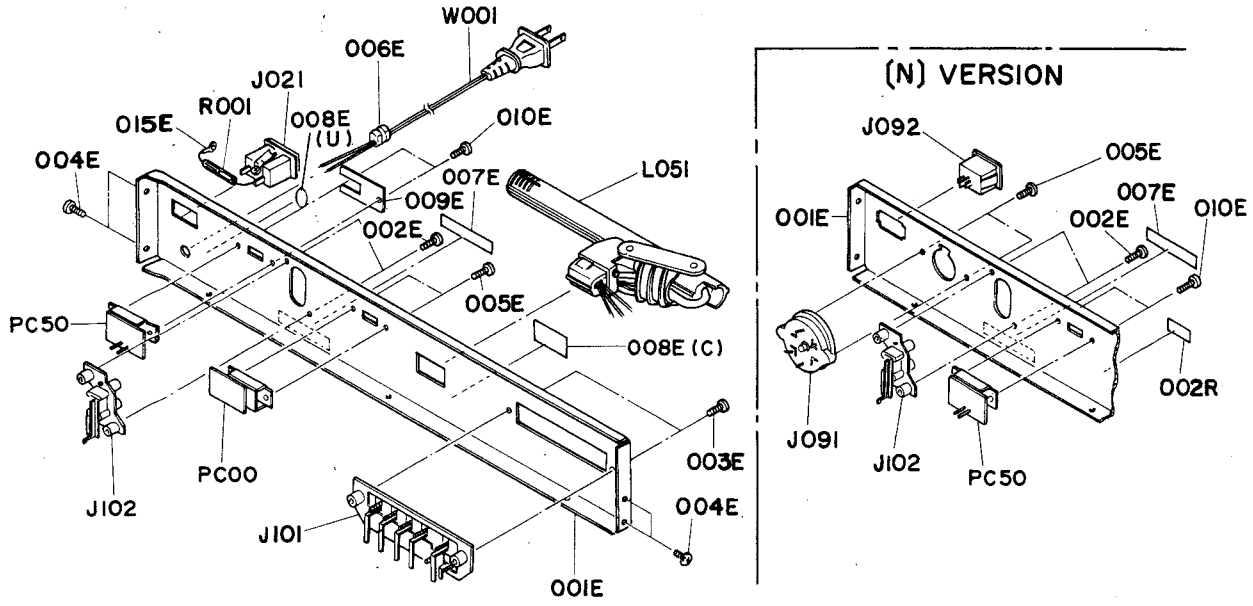
Chassis and General Parts

● (U) for U.S.A.
● (C) for Canada
● (N) for Europe

REF. DESIG.	Q'TY U	C	N	PART NO.	DESCRIPTION	
001F	1	1	1	2137105012	Chassis (R)	
002F	1	1	1	2137105022	Chassis (L)	
003F	1	1	1	2137126012	Stay	
004F	2	2	2	51280308B0	B.H. TAP. Screw	B3 x 8
005F	1	1	1	3896101010	Support	
006F	2	2	2	2922005010	Clamper	
007F	2	2	2	51490410A9	L. Washer Screw	L4 x 10
008F	1	1	1	51280308B0	B.H. TAP. Screw	B3 x 8
009F	1	1	1	51280308B0	B.H. TAP. Screw	B3 x 8
010F	1	1	1	62030049W0	Lug	
011F	2	2	2	2137123010	Contactor	
012F	2	2	2	51280308B0	B.H. TAP. Screw	B3 x 8
013F	1	1	1	2137005030	Clamper	
014F	2	2	2	51100308A9	B.H.M. Screw	B3 x 8
901F			1	2854160030	Bracket	
902F			2	51280305B0	B.H. TAP. Screw	B3 x 5
903F			2	51100306A9	B.H.M. Screw	B3 x 6
001G	1	1	1	2137160013	Bracket	
002G	4	4	4	51280308B0	B.H. TAP. Screw	B3 x 8
003G	2	2	2	2276005050	Clamper	
008G	4	4	4	2276005050	Clamper	
009G	6	6	6	51100306A9	B.H.M. Screw	B3 x 6
011G	1	1	1	1382005030	Clamper	
012G	1	1	1	2137160030	Bracket	
013G	2	2	2	51280308B0	B.H. TAP. Screw	B3 x 8
014G	2	2	2	51280306B0	B.H. TAP. Screw	B3 x 8
001H	1	1	1	2137302012	Dial	
002H	1	1	1	2137158020	Window	
003H	2	2	2	2276005050	Clamper	

REF. DESIG.	Q'TY U	C	N	PART NO.	DESCRIPTION		
009i	1	1	1	2137154030	Knob		
010i	1	1	1	2137160022	Bracket		
011i	1	1	1	2137115020	Spring		
012i	1	1	1	51100306A9	B.H.M. Screw	B3 x 6	
013i	1	1	1	4367112180	Shaft		
001K	2	2	2	2137118010	Spacer		
002K	1	1	1	2137259060	Bushing		
003K	1	1	1	2137259040	Bushing		
004K	1	1	1	2137259050	Bushing		
005K	1	1	1	2137259070	Bushing		
007K	2	2	2	2491007060	Sheet		
008K	1	1	1	2491007060	Sheet		
051K			1	2219120010	Insulator		
052K	2	2	2	2915267020	Heatsink		
101K	1	1	1	2137109010	Shield		
102K	1	1	1	2137109022	Shield		
103K	1	1	1	2137109030	Shield		
104K	1	1	1	2285109052	Shield		
⚠ G001	1	1		DK18103530	Ceramic Cap.	0.01μF	+80% −20%
⚠ G001			1	DF17223800	Film Cap.	0.022μF	±20%
⚠ L001	1	1		TS14808260	Power Transformer		
⚠ L001			1	TS14808270	Power Transformer		
⚠ S001	1	1		SP01010330	Push Switch		
⚠ S001			1	SP02010330	Push Switch		

• [C04-99] Rear Panel

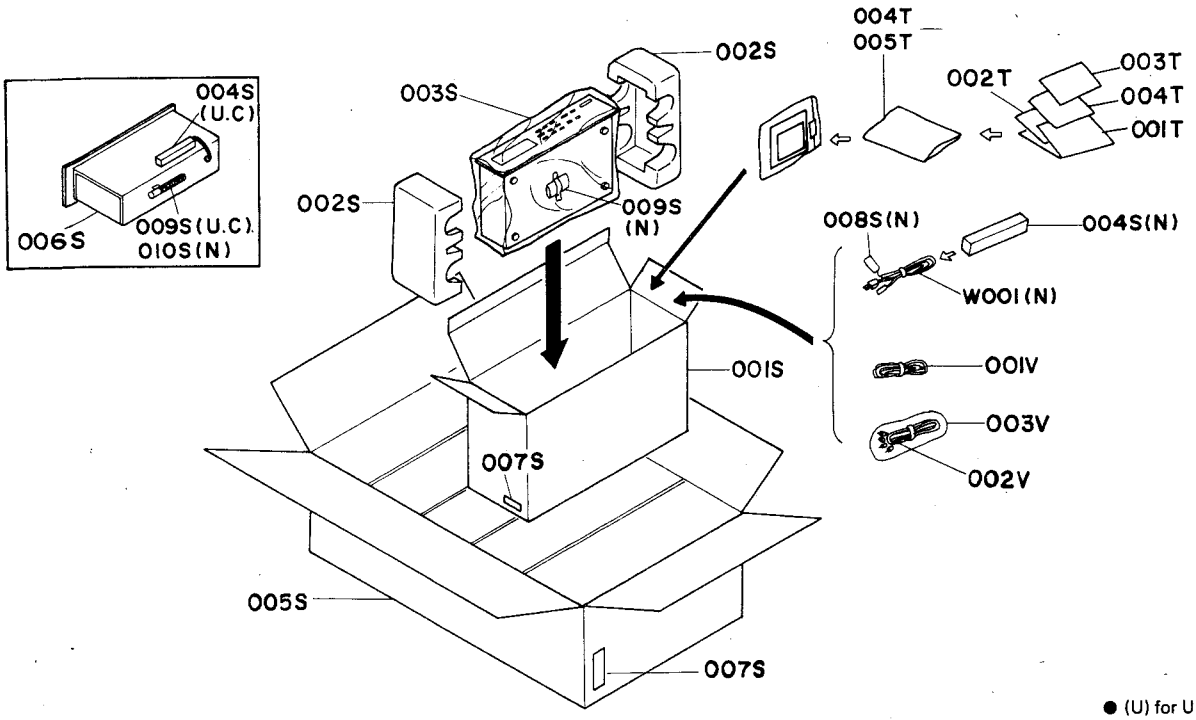


● (U) for U.S.A.
● (C) for Canada
● (N) for Europe

REF. DESIG.	Q'TY U	C	N	PART NO.	DESCRIPTION	
001E	1			2137160213	Bracket	
001E		1		2137160222	Bracket	
001E			1	2137160234	Bracket	
002E	2	2	2	51280308U0	B.H. TAP. Screw	B3 x 8
003E	2	2	2	51280308U0	B.H. TAP. Screw	B3 x 8
004E	4	4	4	51280308B0	B.H. TAP. Screw	B3 x 8
005E	2	2		51100306S9	B.H.M. Screw	B3 x 6
005E			2	5128031040	B.H. TAP. Screw	B3 x 6
006E	1	1	1	1455259030	Bushing	
007E	1	1	1	2112265010	Indicater	
008E	1			9511101070	Label (UL)	
008E		1		2457861040	Label (CSA)	
009E	1	1	1	2137114010	Stopper	
010E	2	2	2	51100306S9	B.H.M. Screw	B3 x 6
015E	1	1		62030049W0	Lug	

REF. DESIG.	Q'TY U	C	N	PART NO.	DESCRIPTION		
J021	1	1		YJ04000560	Jack,	AC Outlet	
⚠ J091			1	BY05060010	Voltage Selector		
⚠ J092			1	YP04000580	Plug,	AC Inlet	
J101	1	1	1	YT01050010	Ant. Terminal		
J102	1	1	1	YT02020210	Output Terminal		
L051	1	1	1	LF11200650	AM Bar Ant.		
⚠ R001	1	1		RC10225120	Resistor	2.2kΩ	1/2W
⚠ W001	1	1		YC01990070			
⚠ W001			1	ZC01805010	AC Power Cord		
002R			1	4581861010	Label		

• [C05-99] Packing Materials



● (U) for U.S.A.
● (C) for Canada
● (N) for Europe

REF. DESIG.	Q'TY U	C	N	PART NO.	DESCRIPTION
001S	1	1		2137801010	Packing Case
001S			1	2137801020	Packing Case
002S	2	2	2	2149809013	Cushion
003S	1	1	1	9090909040	Polyethy Sheet
004S	1	1	1	2864804010	Sleeve
005S	1/5	1/5	1/5	2137805010	Master Carton
006S	1	1	1	2918107280	Sheet
007S	3			9526019010	Label
007S		3		9526019020	Serial No. Card
007S			3	9526019060	Serial No. Card
008S		2		9510901020	Label
008S			1	9560000043	Hang Tag
009S	1	1		2819056010	Buffer
009S			1	2731821012	Silicagel
010S			1	2819056010	Buffer

REF. DESIG.	Q'TY U	C	N	PART NO.	DESCRIPTION
001T	1			2137851010	Instructions
001T		1	1	2137851310	Instructions
002T	1			2137851020	Instructions
002T		1		2137851220	Instructions
002T			1	2137851320	Instructions
003T	1			2818854026	Guarantee Card
003T		1		2818854043	Guarantee Card
003T			1	2137856010	Circuit Diagram
004T	1			2225813012	Envelope
004T		1		2918813012	Envelope
005T		1		9630000180	Guarantee Card
006T		1		9650000053	S. Station Card
007T	1	1	1	9013025010	Polyethy Bag
001V	1	1	1	ZA02000070	Ext. Antenna
002V	1	1	1	ZD01500160	Connective Cord
003V	1	1	1	9011325010	Polyethy Bag

11. ELECTRICAL PARTS LIST

● (U) for U.S.A.
● (C) for Canada
● (N) for Europe

REF. DESIG.	Q'TY U	Q'TY C	Q'TY N	PART NO.	DESCRIPTION		
					P100-TUNER & SYNTHESIZER CIRCUIT BOARD		
P100	1	1		YG21370010	P.W. Board, Tuner & Synthesizer		
			1	WG21370010	P.W. Board, Tuner & Synthesizer		
	1	1		ZZ21370010	P.W. Board Assembly		
			1	ZZ21378010	P.W. Board Assembly		
					P100-CAPACITORS		
C101	1	1	1	CT11100010	Trimming	8pF	
C102	1	1	1	DA16033010	Ceramic	3.3pF	±10%
C103	1	1	1	DA15101010	Ceramic	100pF	±5%
C104	1	1	1	DA17103010	Ceramic	0.01μF	±20%
C105	1	1	1	DA17103010	Ceramic	0.01μF	±20%
C106	1	1	1	DA17103010	Ceramic	0.01μF	±20%
C107	1	1	1	CT11100010	Trimming	8pF	
C108	1	1	1	DA16056010	Ceramic	5.6pF	±10%
C109	1	1	1	DA16056010	Ceramic	5.6pF	±10%
C110	1	1	1	CT11100010	Trimming	8pF	
C111	1	1	1	DA16056010	Ceramic	5.6pF	±10%
C112	1	1	1	DA15100010	Ceramic	10pF	±5%
C113	1	1	1	DA16331010	Ceramic	330pF	±10%
C114	1	1	1	DA17103010	Ceramic	0.01μF	±20%
C115	1	1	1	DA17103010	Ceramic	0.01μF	±20%
C116	1	1	1	DD15150330	Ceramic	15pF	±5%
C117	1	1	1	CT11100010	Trimming	8pF	
C118	1	1	1	DA15100040	Ceramic	10pF	±5%
C119	1	1	1	DD15300360	Ceramic	30pF	±5%
C120	1	1	1	DD15150360	Ceramic	15pF	±5%
C121	1	1	1	DA17103010	Ceramic	0.01μF	±20%
C122	1	1	1	DA17010010	Ceramic	1pF	±20%
C123	1	1	1	DA16022010	Ceramic	2.2pF	±10%
C124	1	1	1	DA15101010	Ceramic	100pF	±5%
C125	1	1	1	DA17103010	Ceramic	0.01μF	±20%
C126	1	1	1	DF15333300	Ceramic	0.033μF	±5%
C127	1	1	1	DK17103300	Ceramic	0.01μF	±20%
C128	1	1	1	DA17103010	Ceramic	0.01μF	±20%
C201	1	1	1	DA17103010	Ceramic	0.01μF	±20%
C202	1	1	1	DA17103010	Ceramic	0.01μF	±20%
C203	1	1	1	DA17103010	Ceramic	0.01μF	±20%
C204	1	1	1	DA17103010	Ceramic	0.01μF	±20%
C205	1	1	1	DA17103010	Ceramic	0.01μF	±20%
C206	1	1	1	DA17103010	Ceramic	0.01μF	±20%
C207	1	1	1	DA17103010	Ceramic	0.01μF	±20%
C208	1	1	1	DA17103010	Ceramic	0.01μF	±20%
C209	1	1	1	DA17103010	Ceramic	0.01μF	±20%
C210	1	1	1	DK18403320	Ceramic	0.04μF	+80% −20%
C211	1	1	1	DK18403320	Ceramic	0.04μF	+80% −20%
C212	1	1	1	EA10505030	Elect	1μF	50V
C213	1	1	1	DA16331010	Ceramic	330pF	±10%
C214	1	1	1	DK18403320	Ceramic	0.04μF	+80% −20%
C215	1	1	1	EA10505030	Elect	1μF	50V
C216	1	1	1	EA10701630	Elect	100μF	16V
C217	1	1	1	DK18403320	Ceramic	0.04μF	+80% −20%
C218	1	1	1	DK18403320	Ceramic	0.04μF	+80% −20%
C219	1	1	1	DK18403320	Ceramic	0.04μF	+80% −20%
C220	1	1	1	EA10505030	Elect	1μF	50V
C221	1	1	1	DK18403320	Ceramic	0.04μF	+80% −20%
C222	1	1	1	DK18403320	Ceramic	0.04μF	+80% −20%
C223	1	1	1	EA10602530	Elect	10μF	25V
C224			1	EA10601690	Elect	10μF	16V
C225			1	DF65182010	Film	1800pF	±5%
C226	1	1	1	DA17103010	Ceramic	0.01μF	±20%
C301			1	EA10601690	Elect	10μF	16V
C302	1	1	1	DF65501010	Film	500pF	±5%
C303	1	1	1	EV68501060	Elect	6.8μF	10V
C304	1	1	1	EQ10505010	Elect	1μF	50V
C305	1	1	1	DF65821010	Film	820pF	±5%
C306	1	1	1	EQ10505010	Elect	1μF	50V
C307	1	1	1	EA10505030	Elect	1μF	50V
C308	1	1	1	DF15473300	Film	0.047μF	±5%
C309	1	1	1	EA10701630	Elect	100μF	16V
C310	1	1	1	EA47601630	Elect	47μF	16V
C311	1	1	1	EA10505030	Elect	1μF	50V
C312	1	1	1	EA10505030	Elect	1μF	50V
C313	1	1	1	EA10405030	Elect	0.1μF	50V
C314	1	1	1	EA10405030	Elect	0.1μF	50V
C315	1	1	1	EA10601630	Elect	10μF	16V
C316	1	1	1	EA10601630	Elect	10μF	16V
C317	1	1	1	DA15101010	Ceramic	100pF	±5%
C318	1	1	1	DA15101010	Ceramic	100pF	±5%
C319	1	1	1	DA16181010	Ceramic	180pF	±10%
C320	1	1	1	DA16181010	Ceramic	180pF	±10%
C321	1	1	1	EA47601630	Elect	47μF	16V
C322	1	1	1	EA47601630	Elect	47μF	16V
C323	1	1	1	EA47505030	Elect	4.7μF	50V
C324	1	1	1	EA47505030	Elect	4.7μF	50V
C325	1	1	1	EA22701630	Elect	220μF	16V
C326	1	1		EA33601630	Elect	33μF	16V
C327	1	1		DF15102300	Film	1000pF	±5%
C327			1	DF55202090	Film	2000pF	±5%
C328	1	1		DF15102300	Film	1000pF	±5%
C328			1	DF55202090	Film	2000pF	±5%
C329	1	1		DF55202090	Film	2000pF	±5%
C330	1	1		DF55202090	Film	2000pF	±5%
C331	1	1	1	EA10505030	Elect	1μF	50V
C501	1	1	1	DK18103310	Ceramic	0.01μF	+80% −20%
C502	1	1	1	DD15121370	Ceramic	120pF	±5%
C503	1	1	1	DD15750300	Ceramic	75pF	±5%
C504	1	1	1	EQ22505020	Elect	2.2μF	50V
C505	1	1	1	DF15683300	Film	0.068μF	±5%
C506	1	1	1	DA17103010	Ceramic	0.01μF	±20%
C507	1	1	1	DD15220370	Ceramic	22pF	±5%
C508	1	1	1	DA15220010	Ceramic	15pF	±5%
C509	1	1	1	EA22800630	Elect	2200μF	6.3V
C510	1	1	1	EA47405030	Elect	0.47μF	50V
C511	1	1	1	EA22700630	Elect	220μF	6.3V
C512	1	1	1	DK16221300	Ceramic	220pF	50V
C513	1	1	1	DK18103300	Ceramic	0.01μF	+80% −20%
C514	1	1	1	DA17103010	Ceramic	0.01μF	±20%
C515	1	1	1	DK18103300	Ceramic	0.01μF	+80% −20%
C516	1	1	1	DK18103300	Ceramic	0.01μF	+80% −20%
C517	1	1	1	DK18103300	Ceramic	0.01μF	+80% −20%
C518	1	1	1	DA17103010	Ceramic	0.01μF	±20%
C801	1	1	1	DK18103510	Ceramic	0.01μF	+80% −20%
C802	1	1	1	EA47703530	Elect	470μF	35V
C804	1	1	1	EA47601030	Elect	47μF	10V
C805	1	1	1	DA17103010	Ceramic	0.01μF	
C806	1	1	1	EA22702590	Elect	220μF	10V

● (U) for U.S.A.
● (C) for Canada
● (N) for Europe

REF. DESIG.	Q'TY U	C	N	PART NO.	DESCRIPTION
C807	1	1	1	EA22701690	Elect 220μF 16V
C808	1	1	1	EA47703530	Elect 470μF 35V
C809	1	1	1	DK18403320	Ceramic 0.04μF +80% −20%
C810	1	1	1	EA47703530	Elect 470μF 35V
C811	1	1	1	DK18403320	Ceamic 0.04μF +80% −20%
C812	1	1	1	DK18103510	Ceramic 0.01μF +80% −20%
C813	1	1	1	DK18103510	Ceramic 0.01μF +80% −20%
C814	1	1	1	EA47705090	Elect 470μF 50V
C815	1	1	1	EA47705090	Elect 470μF 50V
C816	1	1	1	EQ22505020	Elect 470μF 50V
C817	1	1	1	EA47601030	Elect 47μF 10V
C818	1	1	1	EQ22505020	Elect 2.2μF 50V
C819	1	1	1	DA17103010	Ceramic 0.01μF ±20%
CA01	1	1	1	DA17103010	Ceramic 0.01μF ±20%
CA02	1	1	1	CT12000090	Trimming 16pF
CA03	1	1	1	DA17103010	Ceramic 0.01μF ±20%
CA04	1	1	1	DK16102300	Ceramic 1000pF ±10%
CA05	1	1	1	DA17103010	Ceramic 0.01μF ±20%
CA06	1	1	1	EA10701630	Elect 100μF 16V
CA07	1	1	1	DK18403320	Ceramic 0.04μF +80% −20%
CA08	1	1	1	DA15220010	Ceramic 22pF ±5%
CA09	1	1	1	DF65501010	Film 500pF ±5%
CA10	1	1	1	CT11100010	Trimming 8pF
CA11	1	1	1	DA17103010	Ceramic 0.01μF ±20%
CA12	1	1	1	DA17103010	Ceramic 0.01μF ±20%
CA13	1	1	1	DA17103010	Ceramic 0.01μF ±20%
CA14	1	1	1	DA17102010	Ceramic 1000pF ±20%
CA15	1	1	1	EA10701630	Elect 100μF 16V
CA16	1	1	1	DK18403320	Ceramic 0.04μF +80% −20%
CA17	1	1	1	DK18103310	Ceramic 0.01μF +80% −20%
CA18	1	1	1	EA47505030	Elect 4.7μF 50V
CA19	1	1	1	EA10602530	Elect 10μF 25V
CA20	1	1	1	DK18403320	Ceramic 0.04μF +80% −20%
CA21	1	1	1	DK18223310	Ceramic 0.022μF +80% −20%
CA22	1	1	1	DF15683300	Film 0.068μF ±5%
CA23	1	1	1	DA17103010	Ceramic 0.01μF ±20%
CA24	1	1	1	DA17103010	Ceramic 0.01μF ±20%
CA25	1	1	1	DA17103010	Ceramic 0.01μF ±20%
CA26	1	1	1	DA17103010	Ceramic 0.01μF ±20%
CA27	1	1	1	DA17103010	Ceramic 0.01μF ±20%
CA28	1	1	1	DA17102010	Ceramic 1000pF ±20%
CA29	1	1	1	DA17103010	Ceramic 0.01μF ±20%
CA30	1	1	1	DA16221010	Ceramic 220pF ±10%
CA31	1	1	1	DA17103010	Ceramic 0.01μF ±20%
CA32	1	1	1	EA10505030	Elect 1μF 50V
					P100-RESISTORS
					(All Resistors are ±5% & 1/4W)
R101	1	1	1	GD05104140	100kΩ
R102	1	1	1	GD05104140	100kΩ
R103	1	1	1	GD05105140	1MΩ
R104	1	1	1	GD05101140	100Ω
R105	1	1	1	GD05221140	220Ω
R106	1	1	1	GD05104140	100kΩ
R107	1	1	1	GD05104140	100kΩ
R108	1	1	1	GD05472140	4.7kΩ
R109	1	1	1	GD05223140	22kΩ
R110	1	1	1	GD05102140	1kΩ

REF. DESIG.	Q'TY U	C	N	PART NO.	DESCRIPTION
R111	1	1		GD05273140	27kΩ
R112	1	1	1	GD05221140	220kΩ
R113	1	1	1	GD05103140	27kΩ
R114	1	1	1	GD05103140	27kΩ
R115	1	1	1	GD05272140	2.7kΩ
R116	1	1	1	GD05104140	100kΩ
R117	1	1	1	GD05104140	100kΩ
R118	1	1	1	GD05331140	330Ω
R119	1	1	1	GD05223140	22kΩ
R201	1	1	1	GD05331140	330Ω
R202	1	1	1	GD05153140	15kΩ
R203	1	1	1	GD05272140	2.7kΩ
R204	1	1	1	GD05331140	330Ω
R205	1	1	1	GD05102140	1kΩ
R206	1	1	1	GD05332140	3.3kΩ
R207	1	1	1	GD05332140	3.3kΩ
R208	1	1	1	GD05332140	3.3kΩ
R209	1	1	1	GD05331140	330Ω
R210	1	1	1	GD05332140	3.3kΩ
R211	1	1	1	GD05153140	15kΩ
R212	1	1	1	GD05272140	2.7kΩ
R213	1	1	1	GD05331140	330Ω
R214	1	1	1	GD05102140	1kΩ
R215	1	1	1	RA01020110	Trimming 1kΩ
R216	1	1	1	GD05221140	220Ω
R217	1	1	1	GD05331140	330Ω
R218	1	1	1	GD05473140	47kΩ
R219	1	1	1	GD05123140	12kΩ
R220	1	1	1	GD05153140	15kΩ
R221	1	1	1	GD05332140	3.3kΩ
R222	1	1	1	GD05273140	27kΩ
R223	1	1	1	GD05471140	470Ω
R224	1	1	1	GG05470140	47Ω
R225	1	1	1	GD05222140	2.2kΩ
R226	1	1	1	GD05103140	10kΩ
R227	1	1	1	GD05104140	100kΩ
R228	1	1	1	GD05821140	820Ω
R229	1	1	1	RA01030260	10kΩ
R230	1	1	1	GD05334140	330kΩ
R231	1	1	1	GD05184140	180kΩ
R232			1	GD05104140	100kΩ
R233			1	GD05272140	2.7kΩ
R234			1	GD05122140	1.2kΩ
R235			1	GD05272140	2.7kΩ
R236	1	1	1	GD05103140	10kΩ
R237	1	1	1	GD05221140	220Ω
R301	1	1	1	GD05224140	220kΩ
R302	1	1	1	GD05153140	15kΩ
R303	1	1	1	RA04720080	Trimming 4.7kΩ
R304	1	1	1	GD05821140	820Ω
R305	1	1	1	GD05102140	1kΩ
R306	1	1	1	RA05020160	Trimming 5kΩ
R307	1	1	1	GD05473140	47kΩ
R308	1	1	1	GD05154140	150kΩ
R309	1	1	1	GD05154140	150kΩ
R310	1	1	1	GG05470140	47Ω
R311	1	1	1	GD05472140	4.7kΩ
R312	1	1	1	GD05472140	4.7kΩ
R313	1	1	1	GD05472140	4.7kΩ
R314	1	1	1	GD05472140	4.7kΩ

● (U) for U.S.A.
● (C) for Canada
● (N) for Europe

REF. DESIG.	Q'TY U	C	N	PART NO.	DESCRIPTION
R315	1	1	1	GD05104140	100kΩ
R316	1	1	1	GD05104140	100kΩ
R317	1	1	1	GD05223140	22kΩ
R318	1	1	1	GD05223140	22kΩ
R319	1	1	1	GD05273140	27kΩ
R320	1	1	1	GD05273140	27kΩ
R321	1	1	1	GD05333140	33kΩ
R322	1	1	1	GD05333140	33kΩ
R323	1	1	1	GD05681140	680Ω
R324	1	1	1	GD05681140	680Ω
R325	1	1	1	GD05392140	3.9kΩ
R326	1	1	1	GD05392140	3.9kΩ
R327	1	1	1	GD05471140	470Ω
R328	1	1	1	GD05471140	470Ω
R329	1	1	1	GD05473140	47kΩ
R330	1	1	1	GD05473140	47kΩ
R331	1	1	1	GD05103140	10kΩ
R332	1	1	1	GD05471140	470Ω
R334	1	1	1	GD05103140	10kΩ
R335	1	1	1	GD05473140	47kΩ
R501	1	1	1	GD05102140	1kΩ
R502	1	1	1	GD05102140	1kΩ
R503	1	1	1	GD05221140	220Ω
R504	1	1	1	GD05821140	820Ω
R505	1	1	1	GD05222140	2.2kΩ
R506	1	1	1	GD05562140	5.6kΩ
R507	1	1	1	GD05101140	100Ω
R508	1	1	1	GD05472140	4.7kΩ
R509	1	1	1	GD05472140	44.7kΩ
R510	1	1	1	GD05103140	10kΩ
R511	1	1	1	GD05222140	2.2kΩ
R512	1	1	1	GD05222140	2.2kΩ
R513	1	1	1	GD05222140	2.2kΩ
R514	1	1	1	GD05222140	2.2kΩ
R515	1	1	1	GD05222140	2.2kΩ
R516	1	1	1	GD05222140	2.2kΩ
R517	1	1	1	GD05222140	2.2kΩ
R518	1	1	1	GD05393140	39kΩ
R519	1	1	1	GD05393140	39kΩ
R520	1	1	1	GD05393140	39kΩ
R521	1	1	1	GD05393140	39kΩ
R522	1	1	1	GD05472140	4.7kΩ
R523	1	1	1	GD05472140	4.7kΩ
R524	1	1	1	GD05472140	4.7kΩ
R525	1	1	1	GD05104140	100kΩ
R526	1	1	1	GD05104140	100kΩ
R527	1	1	1	GD05104140	100kΩ
R528	1	1	1	GD05104140	100kΩ
R529	1	1	1	GD05104140	100kΩ
R530	1	1	1	GD05104140	100kΩ
R531	1	1	1	GD05104140	100kΩ
R532	1	1	1	GD05104140	100kΩ
R533	1	1	1	GD05104140	100kΩ
R534	1	1	1	GD05104140	100kΩ
R535	1	1	1	GD05104140	100kΩ
R536	1	1	1	GD05104140	100kΩ
R537	1	1	1	GD05104140	100kΩ
R538	1	1	1	GD05104140	100kΩ
R539	1	1	1	GD05104140	100kΩ
R540	1	1	1	GD05104140	100kΩ

REF. DESIG.	Q'TY U	C	N	PART NO.	DESCRIPTION
R541	1	1	1	GD05822140	8.2kΩ
R542	1	1	1	GD05473140	47kΩ
R543	1	1	1	GD05103140	10kΩ
R544	1	1	1	GD05103140	10kΩ
R545	1	1	1	GD05103140	10kΩ
R546	1	1	1	GD05104140	100kΩ
R547	1	1	1	GD05152140	1.5kΩ
R548	1	1	1	GD05152140	1.5kΩ
R549	1	1	1	GD05104140	100kΩ
R550	1	1	1	GD05101140	100Ω
R551	1	1	1	GD05182140	1.8kΩ
R552	1	1	1	GD05100140	10Ω
R553	1	1	1	GD05473140	47kΩ
⚠ R801	1	1	1	GA05151020	150Ω 2W
R803	1	1	1	GG05222140	2.2kΩ
R804	1	1	1	GG05100140	10Ω
⚠ R805	1	1	1	GA05270020	27Ω 2W
R806	1	1	1	GG05471140	470Ω
R807	1	1	1	GD05471140	470Ω
⚠ R808	1	1	1	GA05561010	560Ω 1W
⚠ R809	1	1	1	GA05271010	270Ω 1W
R810	1	1	1	GD05103140	10kΩ
R811	1	1	1	GD05473140	47kΩ
R812	1	1	1	GD05103140	10kΩ
R813	1	1	1	GD05824140	820kΩ
R814	1	1	1	GD05103140	10kΩ
R815	1	1	1	GD05473140	47kΩ
R816	1	1	1	GD05273140	27kΩ
R817	1	1	1	GD05473140	47kΩ
R818	1	1	1	GD05473140	47kΩ
R819	1	1	1	GD05680140	68Ω
RA01	1	1	1	GD05474140	470kΩ
RA02	1	1	1	GD05474140	470kΩ
RA03	1	1	1	GD05221140	220Ω
RA04	1	1	1	GD05152140	1.5kΩ
RA05	1	1	1	GD05393140	39kΩ
RA06	1	1	1	GD05222140	2.2kΩ
RA07	1	1	1	GD05221140	220Ω
RA08	1	1	1	GD05331140	330Ω
RA09	1	1	1	GD05221140	220Ω
RA10	1	1	1	GD05103140	10kΩ
RA11	1	1	1	GD05103140	10kΩ
RA12	1	1	1	GD05102140	1kΩ
RA13	1	1	1	GD05102140	1kΩ
RA14	1	1	1	GD05683140	68kΩ
RA15	1	1	1	GD05103140	10kΩ
RA16	1	1	1	GD05472140	4.7kΩ
RA17	1	1	1	GD05102140	1kΩ
RA18	1	1	1	RA01040110	100kΩ
RA19	1	1	1	GD05103140	10kΩ
RA20	1	1	1	GD05221140	220Ω
RA21	1	1	1	GD05104140	100kΩ
RA22	1	1	1	GD05222140	2.2kΩ
RA23	1	1	1	GD05221140	220Ω
RA24	1	1		GD05473140	47kΩ
RA24			1	GD05333140	33kΩ
RA25	1	1	1	GD05103140	10kΩ
RA26	1	1	1	GD05102140	1kΩ
RA27	1	1	1	GD05472140	4.7kΩ

● (U) for U.S.A.
● (C) for Canada
● (N) for Europe

REF. DESIG.	Q'TY U	C	N	PART NO.	DESCRIPTION	
					P100-SEMICONDUCTORS	
Q101	1	1	1	HD40004010	Varicap	1SV55
Q102	1	1	1	HF400451B0	F.E.T.	3SK45(B)
Q103	1	1	1	HD40004010	Varicap	1SV55
Q104	1	1	1	HD40004010	Varicap	1SV55
Q105	1	1	1	HT310471C0	Transistor	2SC1047(C)
Q106	1	1	1	HT308291C0	Transistor	2SC829(C)
Q107	1	1	1	HD40004010	Varicap	1SV55
Q108	1	1	1	HF200191A0	F.E.T.	2SK19(Y)
Q109	1	1	1	HD20011050	Diode	1S1555
Q201	1	1	1	HT310471C0	Transistor	2SC1047(C)
Q202	1	1	1	HT310471C0	Transistor	2SC1047(C)
Q203	1	1	1	HD20011050	Diode	1S1555
Q204	1	1	1	HD20011050	Diode	1S1555
Q205	1	1	1	HT310471C0	Transistor	2SC1047(C)
Q206	1	1	1	HC10033010	IC	HA11225
Q207	1	1	1	HD20011050	Diode	1S1555
Q208			1	HT309452B0	Transistor	2SC945(P or Q)
Q301	1	1	1	HC10001420	IC	KB4437
Q302	1	1	1	HC10002420	IC	KB4438
Q303	1	1	1	HD20011050	Diode	1S1555
Q501	1	1	1	HC10032060	IC	μPB551(c)
Q502	1	1	1	HF200300B0	F.E.T.	2SK30A(Y1)
Q503	1	1	1	HT309452B0	Transistor	2SC945(P or Q)
Q504	1	1	1	HT309452B0	Transistor	2SC945(P or Q)
Q505	1	1	1	HC10017020	IC	MN6142
Q506	1	1	1	HC10018020	IC	MN1203
Q507	1	1	1	HD20015030	Diode	DS135(D)
Q508	1	1	1	HC10016020	IC	MN1400SJ
Q509	1	1	1	HD20011050	Diode	1S1555
Q510			1	HD20011050	Diode	1S1555
Q511	1	1	1	HT107332A0	Transistor	2SA733(P or Q)
Q512	1	1	1	HT107332A0	Transistor	2SA733(P or Q)
Q513	1	1	1	HT107332A0	Transistor	2SA733(P or Q)
Q514	1	1	1	HT107332A0	Transistor	2SA733(P or Q)
Q515	1	1	1	HT107332A0	Transistor	2SA733(P or Q)
Q516	1	1	1	HT106332A0	Transistor	2SA733(P or Q)
Q517	1	1	1	HT107332A0	Transistor	2SA733(P or Q)
Q518	1	1	1	HC10048050	IC	TC5066(BP)
Q519	1	1	1	HT107332A0	Transistor	2SA733(P or Q)
Q520	1	1	1	HT107332A0	Transistor	2SA733(P or Q)
Q521	1	1	1	HT107332A0	Transistor	2SA733(P or Q)
Q522	1	1	1	HT309452B0	Transistor	2SC945(P or Q)
Q523	1	1	1	HT107332A0	Transistor	2SA733(P or Q)
Q524	1	1	1	HD20011050	Diode	1S1555
Q525	1	1	1	HD20011050	Diode	1S1555
Q526	1	1	1	HD20011050	Diode	1S1555
Q527	1	1	1	HD20011050	Diode	1S1555
Q528	1	1	1	HD20011050	Diode	1S1555
Q529	1	1	1	HD20011050	Diode	1S1555
Q530	1	1	1	HD20011050	Diode	1S1555
Q531	1	1	1	HD20011050	Diode	1S1555
Q532	1	1	1	HD20011050	Diode	1S1555
⚠ Q801	1	1	1	HD20015030	Diode	DS135(D)
⚠ Q802	1	1	1	HD20015030	Diode	DS135(D)
⚠ Q803	1	1	1	HD20015030	Diode	DS135(D)
⚠ Q804	1	1	1	HD20015030	Diode	DS135(D)
⚠ Q805	1	1	1	HT403131E0	Transistor	2SD313(E)
Q806	1	1	1	HD30036090	Zener	WZ065
⚠ Q807	1	1	1	HT403131E0	Transistor	2SD313(E)
Q808	1	1	1	HD30027090	Zener	WZ-140

REF. DESIG.	Q'TY U	C	N	PART NO.	DESCRIPTION	
Q809	1	1	1	HD30068090	Zener	WZ270
Q810	1	1	1	HD30066090	Zener	BZ-300
⚠ Q811	1	1	1	HD20015030	Diode	DS135(D)
⚠ Q812	1	1	1	HD20015030	Diode	DS135(D)
Q813	1	1	1	HD30031090	Zener	WZ081
Q814	1	1	1	HD20011050	Diode	1S1555
Q815	1	1	1	HT107332A0	Transistor	2SA733(P or Q)
Q816	1	1	1	HT107332A0	Transistor	2SA733(P or Q)
Q817	1	1	1	HT309452B0	Transistor	2SC945(P or Q)
Q818	1	1	1	HD20011050	Diode	1S1555
Q819	1	1	1	HT309452B0	Transistor	2SC945(P or Q)
QA01	1	1	1	HC10019010	IC	HA1197
QA02	1	1	1	HD40002420	Varicap	KV1226
QA03	1	1	1	HD20011050	Diode	1S1555
QA04	1	1	1	HT308291C0	Transistor	2SC829(C)
QA05	1	1	1	HD10003020	Diode	20A90
QA06	1	1	1	HD10003020	Diode	20A90
QA07	1	1	1	HT309452B0	Transistor	2SC945(P or Q)
QA08	1	1	1	HT308291C0	Transistor	2SC829(C)
QA09	1	1	1	HT308291C0	Transistor	2SC829(C)
					P100-FILTERS	
F201	1	1	1	FF11070530	Ceramic Filter	SFE10.7MD1
F202	1	1	1	FF11070570	Ceramic Filter	SFE10.7MS3G
F203	1	1		FF11070530	Ceramic Filter	SFE10.7MD1
F203			1	FF11070570	Ceramic Filter	SFE10.7MS3G
FA01	1	1	1	FF10045230	Ceramic Filter	CFM-450BL
FA02	1		1	FF10045240	Ceramic Filter	CFM-450Z
L101	1	1	1	LA12026190	Ant Coil	FM
L102	1	1	1	LA12026200	Ant Coil	FM
L103	1	1	1	LA12026210	An5 Coil	FM
L104	1	1	1	LC17510010	Choke Coil	0.75μH
L105	1	1	1	LI10016010	I.F.T.	FM
L106	1	1	1	LO12046030	OSC Coil	FM
L107	1	1	1	LC13320050	Choke Coil	3.3μH
L201	1	1	1	LI10016010	I.F.T.	
L202	1	1	1	LI14030010	I.F.T.	FM
L203	1	1	1	LS35040010	M.P.X. Coil	
L204			1	LS10290190	M.P.X. Coil	
L301	1	1	1	LS10015070	M.P.X. Coil	38kHz LPF
L302	1	1	1	LS10015070	M.P.x. Coil	38kHz LPF
L501	1	1	1	LC11030020	Choke Coil	10μH
L502	1	1	1	LC13320050	Choke Coil	3.3μH
LA01	1	1	1	LC11540020	Choke Coil	150μH
LA02	1	1	1	LO10010480	OSC Coil	AM
LA03	1	1	1	LI10010720	I.F.T.	AM
LA04	1	1	1	LI10015060	I.F.T.	AM
					P100-MISCELLANEOUS	
X501	1	1	1	XA10800IL2	Cristal	11.52MHz
WC01	1	1	1	YU04090010	Jumper Lead	4P-90MM

● (U) for U.S.A.
● (C) for Canada
● (N) for Europe

REF. DESIG.	Q'TY U	C	N	PART NO.	DESCRIPTION
					P900-DISPLAY ASSEMBLY CIRCUIT BOARD
P900	1	1		YK21371610	P.W. Board, Display Assembly
			1	WG21371610	P.W. Board, Display Assembly
	1	1	1	ZZ21371610	P.W. Board Assembly
					P900-CAPACITORS
C901	1	1	1	EV22601660	Elect 22μF 16V
C902	1	1	1	EV33501660	Elect 3.3μF 16V
					P900-RESISTORS (All Resistors are ±5% & 1/4W)
R901	1	1	1	GD05332140	3.3kΩ
R902	1	1	1	GD05472140	4.7kΩ
R903	1	1	1	GD05103140	10kΩ
R904	1	1	1	GG05560140	56Ω
R905	1	1	1	GD05151140	150Ω
R906	1	1	1	GD05151140	150Ω
R907	1	1	1	GD05151140	150Ω
R908	1	1	1	GD05151140	150Ω
R909	1	1	1	GD05151140	150Ω
R910	1	1	1	GD05333140	33kΩ
R911	1	1	1	GD05153140	15kΩ
					P900-SEMICONDUCTORS
Q901	1	1	1	HC10040030	IC LB1416
Q902	1	1	1	HI10008030	L.E.D. SLP-141B
Q903	1	1	1	HI10008030	L.E.D. SLP-141B
Q904	1	1	1	HI10008030	L.E.D. SLP-141B
Q905	1	1	1	HI10008030	L.E.D. SLP-141B
Q906	1	1	1	HI10008030	L.E.D. SLP-141B
Q907	1	1	1	HD20011050	Diode 1S1555
Q908	1	1	1	HD20011050	Diode 1S1555
Q909	1	1	1	HD20011050	Diode 1S1555
Q910	1	1	1	HD20011050	Diode 1S1555
Q911	1	1	1	HD20011050	Diode 1S1555
Q912	1	1	1	HD20011050	Diode 1S1555
Q913	1	1	1	HD20011050	Diode 1S1555
Q914	1	1	1	HI10010030	L.E.D. SLP-144B
Q915	1	1	1	HI10010030	L.E.D. SLP-144B
Q916	1	1	1	HI10010030	L.E.D. SLP-144B
Q917	1	1	1	HI10010030	L.E.D. SLP-144B
Q918	1	1	1	HI10010030	L.E.D. SLP-144B
Q919	1	1	1	HI10010030	L.E.D. SLP-144B
Q920	1	1	1	HI10010030	L.E.D. SLP-144B
V901	1	1	1	HQ30701410	Display Unit 8-MT-01
WV01	1	1	1	YU12110010	Jumper Lead 12P-110MM
WV01	1	1	1	YU10110010	Jumper Lead 10P-110MM

REF. DESIG.	Q'TY U	C	N	PART NO.	DESCRIPTION
					PB00-NOISE AMP. CIRCUIT BOARD
PB00	1	1	1	YA22180610	P.W. Board, Noise AMP.
	1	1	1	ZZ21370610	P.W. Board Assembly
					PB00-CAPACITORS
CB01	1	1	1	DD11100370	Ceramic 10pF ±0.5pF
CB02	1	1	1	DF16683300	Film 0.068μF ±10%
CB03	1	1	1	DF17403300	Film 0.04μF ±20%
CB04	1	1	1	DK18104020	Ceramic 0.1μF +80% −20%
CB05	1	1	1	DK18403320	Ceramic 0.04μF +80% −20%
CB06	1	1	1	EA10601690	Elect 10μF 16V
CB07	1	1	1	EA10505090	Elect 1μF 50V
					PB00-RESISTORS (All Resistors are ±5% & 1/4W)
RB01	1	1	1	GD05562140	5.6kΩ
RB02	1	1	1	GD05104140	100kΩ
RB03	1	1	1	GD05273140	27kΩ
RB04	1	1	1	GD05102140	1kΩ
RB05	1	1	1	GD05273140	27kΩ
RB06	1	1	1	GD05333140	33kΩ
RB08	1	1	1	GD05101140	100Ω
RB09	1	1	1	GD05101140	100Ω
RB10	1	1	1	GD05104140	100kΩ
RB11	1	1	1	GD05103140	10kΩ
RB12	1	1	1	GD05472140	4.7kΩ
					PB00-SEMICONDUCTORS
QB01	1	1	1	HT309452B0	Transistor 2SC945(P or Q)
QB02	1	1	1	HT309452B0	Transistor 2SC945(P or Q)
QB03	1	1	1	HD10001050	Diode 1N60
QB04	1	1	1	HD10001050	Diode 1N60
QB05	1	1	1	HT309452B0	Transistor 2SC945(P or Q)
QB06	1	1	1,	HD20011050	Diode 1S1555
					PB00-COIL
LB01	1	1	1	LC21050010	Choke Coil 1mH
					PC00-DE-EMPHASIS SWITCH BOARD
PC00	1	1		YK21371650	P.W. Board, De-Emphasis Switch
				ZZ21371650	P.W. Board Assembly
SC01	1	1		SS02020380	Slide Switch
					PC50-SCAN STEP CIRCUIT BOARD
PC50	1	1		YK21371660	P.W. Board, Scan Step
			1	WK21371660	P.W. Board, Scan Step
				ZZ21371660	P.W. Board Assembly
QC51	1	1	1	HD20011050	Diode 1S1555
SC51	1	1	1	SS02020380	Scan Step Switch

● (U) for U.S.A.
● (C) for Canada
● (N) for Europe

REF. DESIG.	Q'TY U	C	N	PART NO.	DESCRIPTION
					PP00-FUSE CIRCUIT BOARD
PP00			1	YF21370010	P.W. Board, Fuse
			1	ZZ21377010	P.W. Board Assembly
⚠ FP01			1	FS10031800	Fuse
⚠ FP02			1	FS10010800	Fuse
JP05 ~ JP08			5	YJ08000200	Jack, Fuse Holder
					PS00-FUNCTION SWITCH CIRCUIT BOARD
PS00	1	1		YK21371630	P.W. Board, Function Switch
			1	WK21371630	P.W. Board, Function Switch
	1	1	1	ZZ21371630	P.W. Board Assembly
					PS00-CAPACITORS
CS01	1	1	1	EA10602530	Elect 10μF 25V
CS02	1	1	1	EA10602530	Elect 10μF 25V
					PS00-RESISTORS (All Resistors are ±5% & 1/4W)
RS01	1	1	1	GD05223140	22kΩ
RS02	1	1	1	GD05103140	10kΩ
RS03	1	1	1	GD05473140	47kΩ
RS04	1	1	1	RA05030090	Trimming 50kΩ
RS05	1	1	1	RA01040110	Trimming 100kΩ
RS06	1	1	1	RA01030260	Trimming 10kΩ
					PS00-SEMICONDUCTORS
QS01	1	1	1	HT107332A0	Transistor 2SA733(P or Q)
					PS00-SWITCH
SS01	1	1	1	SP06020120	AM, FM, Wide Switch
					PS00-JUMPER LEADS
WS01	1	1	1	YU06180210	6P-180MM
WS02	1	1	1	YU05210210	5P-210MM
WS03	1	1	1	YU05080010	5P-80MM
WS04	1	1	1	YU05060010	5P-60MM
WS05	1	1	1	YU04090010	4P-90MM
WS06	1	1	1	YU02110010	2P-110MM

REF. DESIG.	Q'TY U	C	N	PART NO.	DESCRIPTION
					PT00-MODE SWITCH CIRCUIT BOARD
PT00	1	1		YK21371640	P.W. Board, Mode Switch
			1	WK21371640	P.W. Board, Mode Switch
	1	1	1	ZZ21371640	P.W. Board Assembly
					PT00-CAPACITORS
CT01	1	1	1	EA10602530	Elect 10μF 25V
CT02	1	1	1	DK18223310	Ceramic 0.022μF +80% −20%
					PT00-RESISTORS (All Resistors are ±5% & 1/4W)
RT01	1	1	1	RA01040110	Trimming 100kΩ
RT02	1	1	1	GD05123140	Resistor 12kΩ
					PT00-SEMICONDUCTORS
QT01	1	1	1	HD20011050	Diode 1S1555
QT02	1	1	1	HD20011050	Diode 1S1555
					PT00-MISCELLANEOUS
ST01	1	1	1	SP04020280	Mode Switch
WT01	1	1	1	YU03115010	Jumper Lead
WT02	1	1	1	YU02070010	Jumper Lead
					PU00-PRESET SWITCH CIRCUIT BOARD
PU00	1	1		YK21371620	P.W. Board, Preset Switch
			1	WK21371620	P.W. Board, Preset Switch
	1	1	1	ZZ21371620	P.W. Board Assembly
					PU00-SEMICONDUCTORS
QU01 ~ QU10	10	10	10	HD20011050	Diode 1S1555
					PU00-MISCELLANEOUS
SU01 ~ SU10	10	10	10	SP01010350	Preset Switch
WU01	1	1	1	YU07130010	Jumper Lead

W01-99	Assembly and Wiring
T01-99	Adjustment
X01-00	Correction

12. TECHNICAL SPECIFICATIONS

[FOR U.S.A. & CANADIAN MODEL ONLY]

FM TUNER SECTION:

Sensitivity		
IHF Usable		9.8 dBf (1.7 μV)
IHF 50 dB Quieting (Mono)		13.2 dBf (2.5 μV)
(Stereo)		36.1 dBf (35 μV)
Quieting Slope (Mono)		
RF Input for 30 dB Quieting		7.2 dBf (1.3 μV)
Quieting at:		
20 dBf (5.5 μV)		55 dB
25 dBf (10 μV)		60 dB
40 dBf (55 μV)		74 dB
65 dBf (1000 μV)		80 dB
Quieting Slope (Stereo)		
Quieting at:		
30 dBf (17 μV)		42 dB
40 dBf (55 μV)		54 dB
50 dBf (173 μV)		64 dB
65 dBf (1000 μV)		72 dB
Distortion (Mono) at 65 dBf (1000 μV)	WIDE	NARROW
100 Hz	0.15%	0.25%
1000 Hz	0.1%	0.15%
6000 Hz	0.15%	0.3%
Distortion (Stereo) at 65 dBf (1000 μV)		
100 Hz	0.25%	0.35%
1000 Hz	0.2%	0.3%
6000 Hz	0.25%	0.5%
Stereo Separation		
100 Hz	43 dB	40 dB
1000 Hz	48 dB	45 dB
10000 Hz	38 dB	35 dB
Capture Ratio at 65 dBf (1000 μV)	0.9 dB	1.5 dB
Frequency Response		
30 Hz to 15 kHz		
Mono and Stereo		+0.5 dB, -1.0 dB
Alternate Channel Selectivity		65 dB
Spurious Response Rejection		90 dB
Image Response Rejection		55 dB
I.F. Rejection (Balanced)		90 dB
A.M. Suppression		55 dB
Subcarrier Rejection		65 dB

AM TUNER SECTION:

IHF Usable Sensitivity	20 μV
Signal-to-Noise Ratio	50 dB
Alternate Channel Selectivity	45 dB
Image Rejection	45 dB
Spurious Response Rejection	55 dB
I.F. Rejection	40 dB

GENERAL:

Power Requirements	120 VAC, 60 Hz
Power Consumption at rated output, both channels operating	10 W
Dimensions:	
Panel Width	416 mm (16-3/8 inches)
Panel Height	73 mm (2-7/8 inches)
Depth	300 mm (11-3/4 inches)
Weight:	
Unit alone	4 kg (8.8 lbs)

[FOR EUROPEAN MODEL ONLY]

FM TUNER SECTION:

Frequency Range	87.5 ~ 108 MHz	
Usable Sensitivity 40 kHz Deviation, 98 MHz (75 ohms)		
Mono S/N 26 dB	0.9 μV	
Stereo S/N 46 dB	23 μV	
	WIDE	NARROW
Alternate Channel Selectivity 98 MHz, ±300 kHz	45 dB	70 dB
Total Harmonic Distortion at 98 MHz,		
Mono	0.1%	0.15%
Stereo	0.2%	0.3%
Separation		
Stereo	48 dB	45 dB
Image Response Rejection, 98 MHz	75 dB	
IF Rejection, 98 MHz	95 dB	
Spurious Response Rejection, 98 MHz	98 dB	
AM Suppression, 98 MHz	55 dB	
Signal-to-Noise Ratio at 98 MHz		
Un-weighted Mono	65 dB	
Stereo	65 dB	
Weighted Mono	70 dB	
Stereo	65 dB	
Pilot Signal & Subcarrier Rejection		
19 kHz	65 dB	
38 kHz	68 dB	
Frequency Response		
30 Hz ~ 15 kHz	+0.2 dB, -1.5 dB	
Channel Balance	0.2 dB	
Output Voltage, 1 kHz	700 mV	
Output Impedance, 1 kHz	1 k ohms	
Acceptable Load Impedance, 1 kHz	47 k ohms	
Antenna Terminals		
Balanced	300 ohms	
Unbalanced	75 ohms	

MW TUNER SECTION:

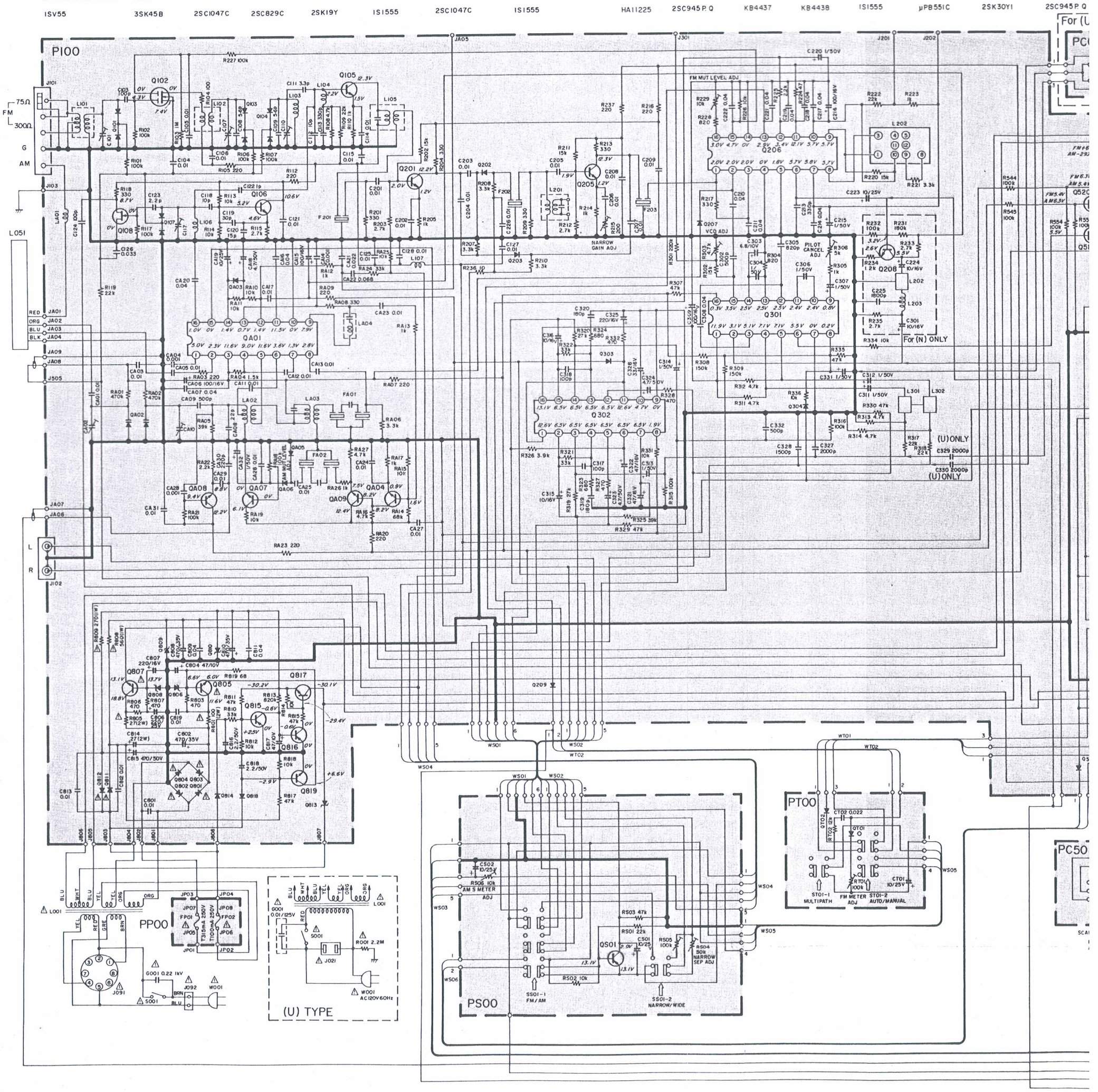
Frequency Range	531 ~ 1,602 kHz
Usable Sensitivity 26 dB S/N 30% Mod., 1 MHz	25 μV
Selectivity 1MHz, ±9 kHz	30 dB
Image Rejection, 1 MHz	50 dB
IF Rejection, 1 MHz	46 dB
Spurious Response Rejection, 1 MHz	60 dB
Signal-to-Noise Ratio, 1 MHz	55 dB
Frequency Response 1 MHz, ±3 dB	40 Hz ~ 2.2 kHz
Total Harmonic Distortion, 1 MHz	0.5%

GENERAL:

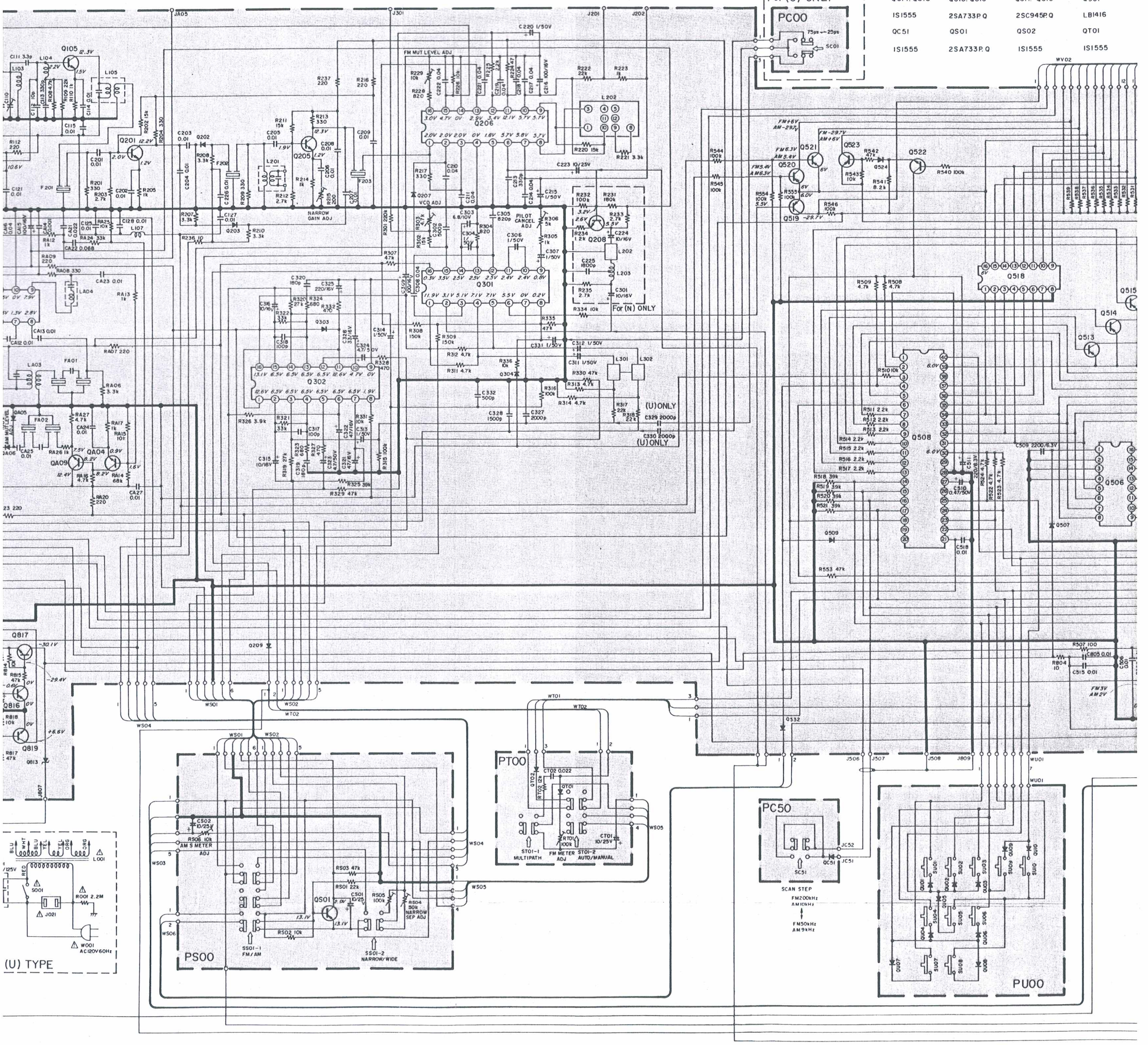
Power Requirements	220 V ~ , 50 Hz
	(N version is featuring an external voltage selector for use on 110 V. Other versions can be converted by a qualified technician to operate on 240 V.)
Power Consumption	10 W
Semiconductor Complement	
Integrated Circuits	10
Transistors	33
Diodes	70
Field Effect Transistors	3
Dimensions:	
Panel Width	416 mm (16-3/8 inches)
Panel Height	73 mm (2-7/8 inches)
Depth	300 mm (11-13/16 inches)
Weight:	
Unit Alone	4 kg (8.8 lbs)
Packed for Shipment	5.5 kg (12.1 lbs)

12. SCHEMATIC DIAGRAM

Q101, Q103, Q104, Q107	Q102	Q105	Q106	Q108	Q109	Q201, Q205	Q202 ~ Q204, Q207, Q209	Q206	Q208	Q301	Q302	Q303, Q304	Q501	Q502	Q503, Q504
1SV55	3SK45B	2SC1047C	2SC829C	2SK19Y	1S1555	2SC1047C	1S1555	HA11225	2SC945P,Q	KB4437	KB4438	1S1555	μPB551C	2SK30Y1	2SC945P,Q



	Q108	Q109	Q201, Q205	Q202 ~ Q204, Q207, Q209	Q206	Q208	Q301	Q302	Q303, Q304	Q501	Q502	Q503, Q504, Q522	Q505	Q506	Q507	Q508	Q509, Q510, Q524, Q532
C	2SK19Y	IS1555	2SC1047C	IS1555	HA11225	2SC945P,Q	KB4437	KB4438	IS1555	μPB551C	2SK30Y1	2SC945P,Q	MN6142	MN1203	DS135D	MN1400SJ	IS1555
														Q814, Q818	Q815, Q816	Q817, Q819	Q901
														IS1555	2SA733P,Q	2SC945P,Q	LB1416
														QC51	QS01	QS02	QT01
														IS1555	2SA733P,Q	IS1555	IS1555



2	Q503. Q504. Q522	Q505	Q506	Q507	Q508	Q509. Q510. Q524. Q532	Q511 ~ Q517. Q519 ~ Q521. Q523	Q518	Q801 ~ Q804. Q811. Q812	Q805. Q807	Q806	Q808	Q809	Q810	Q813
30Y1	2SC945P.Q	MN6142	MN1203	DS135D	MN1400SJ	IS1555	2SA733P.Q	TC5066BP	DS135D	2SD313E	WZ-065	WZ-140	WZ-270	BZ300	WZ-081

Q814. Q818	Q815. Q816	Q817. Q819	Q901	Q902 ~ Q906	Q907 ~ Q913	Q914 ~ Q920	QA01	QA02	QA03	QA04. QA08. QA09	QA05. QA06	QA07
IS1555	2SA733P.Q	2SC945P.Q	LB1416	SLP-141B	IS1555	SLP-144B	HA1197	KV1226	IS1555	2SC829C	20A90	2SC945P.Q
QC51	QS01	QS02	QT01	QU01 ~ QU10	V901	QB01. QB02. QB05.	QB03. QB04	QB06				
IS1555	2SA733P.Q	IS1555	IS1555	IS1555	8-MT-01	2SC945P.Q	IN60	IS1555				

For (U) ONLY

PC00

75μs ⟷ 25μs

SC01

WV02

WU01

WS03

J501 J502 J503 J504 J506 J507 J508 J809

P900

PC50

JC52 JC51 QC51 SC51

SCAN STEP

FM200kHz AM10kHz

FM50kHz AM9kHz

PU00

PB00

LB01 QB01 QB02 QB05 QB06

BOTTOM VIEW

Q102 — 1: DRAIN 2: SOURCE 3: GATE 1 4: GATE 2

Q502 — 1: SOURCE 2: GATE 3: DRAIN

Q105. Q106. Q201. Q205. Q208. Q50. Q511 ~ Q517. Q519 ~ Q521. Q523. Q5 Q815. Q817. Q819. QA04. QA07 ~ Q QS01 — 1: EMITER 2: COLLECTOR 3: BASE

Q108 — 1: DRAIN 2: SOURCE 3: GATE

SIDE VIEW

Q805. Q807 — 1: BASE 2: COLLECTOR FLANGE 3: EMITER

TOP VIEW

Q206. Q301. Q302 Q A01. Q505. Q506 Q518

Q508

Q901

Q501

NOTE ON SAFETY:
The parts marked with ⚠ are important parts on the safety. Please use the parts having the designated parts numbers without fail.